DAVID DICKSON'S
AND
JAMES M. SMITH'S
FARMING

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Edited by
G. F. HUNNICUTT

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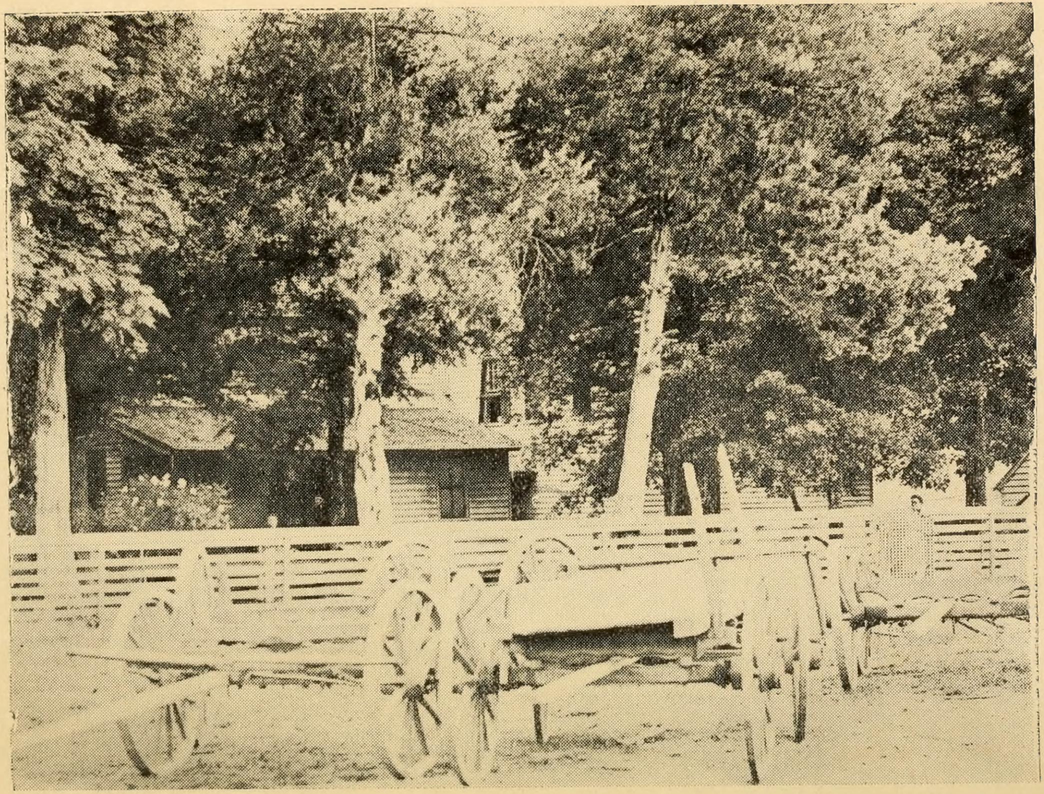

David Dickson's Home.

DAVID DICKSON'S
AND
JAMES M. SMITH'S
FARMING

BY
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AND
JAMES M. SMITH

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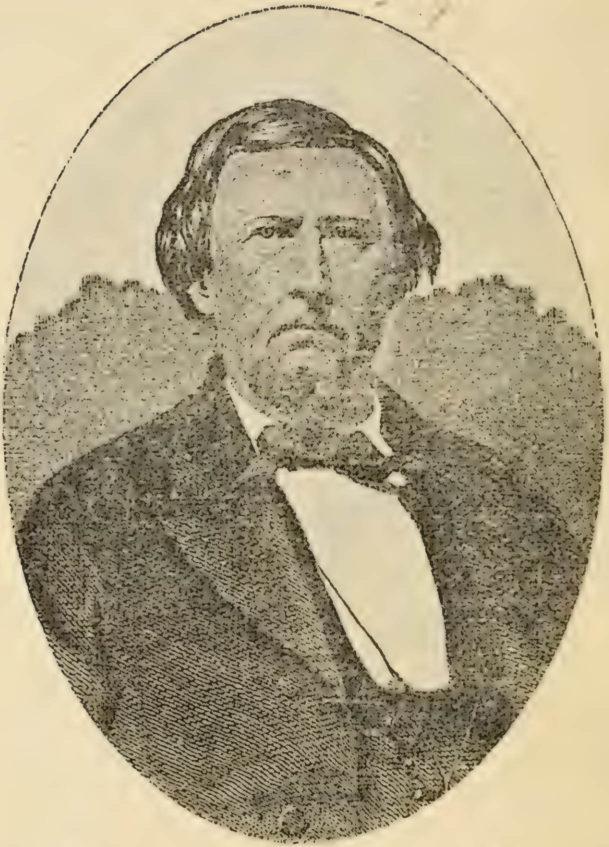

David Dickson

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Preface to Revised Edition

DAVID DIXON'S AND JAMES M. SMITH'S FARMING.

We are very grateful for the favor that our first edition of "David Dickson's System of Farming" met with at our patrons' hands. The two thousand volumes were soon taken.

The writings of David Dickson form the fundamental basis of successful farming in the South. No writer will ever say better much that he has said, and his writings are worthy of all the attention they have received or may receive at our farmers' hands.

But we dislike to publish pamphlets. We think so valuable a contribution to our Agricultural literature is worthy of book form. So, in casting about for more material with which to enlarge our second edition, it occurred to us that it would be a happy idea to add something concerning the life and success of James M. Smith, Georgia's present King of Farmers.

It was our desire to get a series of articles written especially for this book, but Mr. Smith was so engrossed with the pressure of business, that he could not spare the time; so instead we were compelled to give a few chapters written by our Mr. F. G. Hunnicutt, with an article or two from Mr. Smith's pen.

However small the scale of operation, or poor the farmer, all should, and do, crave success. To gain this in any measure, we should profit by the career of the successful farmers who precede us.

The two men whose experience is given in this volume have made a signal success, each one amassing a fortune of over two million of dollars, and neither lived in a fertile section, but one on poor, sandy lands and the other on the red hills of Georgia. So we can but say in all kindness that poor and perverted indeed is the mind that can not receive great benefit from perusing this volume, and we send it out with confidence that it will meet with a cordial reception at the hands of our reading Southern farmers.

PREFACE

DAVID DICKSON

His Great and Wonderful Success as a Farmer.

Mr. Dickson was reared on a farm, and while yet a plough-boy conceived the principles of agriculture that now distinguish the system of farming which has immortalized his name, and brought him not only fame but fortune. While ploughing and hoeing corn, in his boyhood, it occurred to him that that method of cultivating was wrong. He says, "while ploughing—cutting the roots of plants—I could see the effect of hot days behind me in less than thirty minutes, and it would continue for days to damage the crops, more or less, according to after seasons. Even with the hoe, digging round the corn, and hilling up, I could see the corn wilt at once, in hot and dry weather; and the corn would fire more or less, and sometimes be thus prevented from silking well. How was this to be prevented? I formed my opinion then, and put it in practice as soon as I commenced planting." Again he says, "I saw new land full of mold never baked, was always easily worked, and would stand a long drougth and a heavy wet spell. The conclusion was, to keep all land in the virgin state, as near as possible. How was this to be done?"

The reader will notice that these observations and inquiries struck at the very foundations of agriculture. His close duty to nature had detected a fundamental error, and his genius readily devised the remedy.

When, years afterwards, Mr. Dickson had determined to invest his all in farming, so strong was his faith in the truth of the convictions of his youth upon these agricultural subjects, that he adopted them in his practice, discarding the old stereotyped system of farming as erroneous. In developing the principle of his newly-conceived system, and reducing it to practice, he found that one preparation of land was all-sufficient for each crop; that the lands would be improved, would produce double the crop per acre; and that a hand could cultivate fifty per cent. more acres, and obtain more than five times the usual dividends.

At twenty-one years of age, Mr. Dickson started out with $1,200. By merchandising and trading, he made $25,000 in fourteen years. At this period (1845) he invested all his means in lands, negroes, stock and agricultural utensils, and commenced farming. He purchased two hundred and sixty-six acres of land, for which he paid from $1 to $2 per acre, and for some as low as 50 cents per acre. Lands, under his system and success, continued to rise in price until 1860, when he paid $18 per acre for the last. The average $7 per acre. This land had been producing four bushels of corn per acre, and two hundred pounds of seed cotton. On beginning to plant he followed his own peculiar notions, putting in practice the conceptions of his boyhood; and these constitute the guiding principles of the Dickson system of farming to-day. These early impressions have been verified by experience, and thoroughly demonstrated by successful results. He says his crops were fine from the very first, and that he never failed to make a good average crop, no matter what the season.

The reader will observe that Mr. Dickson's first crop was a success; and that, at that time, guano had not been introduced. This fact tends to correct the impression that his success in farming has been attributable alone to the liberal use of "ammonia"—in other words, to the employment of guanos. We know that he did not use much guano until 1857. Yet his crops were "fine" and paid good dividends! What does this show? Clearly, that most of his success as a farmer has been due to his peculiar method of treating his lands, and cultivating his crops, and not materally to his feeding his crops with ammonia, superphosphate, potash, land plaster and salt. The principles of cultivation, in his system, are essentially different from the popular system of agriculture, and to this system, as a whole, conjoined with Mr. Dickson's native genius and extraordinary executive ability must we attribute his success. Peruvian guano, or even "Dickson's Compound," used according to the common plan of farming, would not produce half such results. The "magic" is to be found in the way it is used, and the general policy of treating and cultivating the lands. It is a great mistake to say that guano has made Mr. Dickson. The fact is, Mr. Dickson helped to make the guano market. Native genius, good judgment, his study of nature and her laws, and their application to agriculture, have made Mr. Dickson. True, guano has been a potent agency in his hand, but it has paid better with him than it has with nine-tenths of the planters, because he has used it in accordance with the principles of rational agriculture. But the liberal use of fertilizers constitutes an important ingredient in his system of farming. Guano has paid him, while it has proved worthless with many who have not employed it with a proper system of cultivation. Mr. Dickson's system must be taken as a whole, and in calculating his results, guano must come in only for a part of the credit. Mr. Dickson had planted nine years before he used guano to its full extent, (200 to 250 pounds to the acre), and yet his crops were good.

In 1846, the second year of Mr. Dickson's planting, he made his first trial of guano. "I saw," he says, "an advertisement in the 'American Farmer,' Baltimore, of the wonderful effects of Peruvian guano. I procured three sacks, and used it, and finding it paid, used it in increased quantities, till 1855 or 1856, and then went in to it fully." Very soon after this Mr. Dickson commenced having bones prepared with acid, according to English farming, furnishing what we now use as "dissolved bones." This he combined with Peruvian guano, and ultimately he added land plaster, salt and potash. This combination was a result of a great deal of experimenting with all kinds of guanos, and, as the reader knows, it is now his favorite "compound."

The reader will notice subsequently an experiment with this compound and the result. With $17 worth per acre, the crop was three thousand pounds per acre the field over, equivalent to two bales, which, at the market value at that time, was worth $250. A part of this tract produced 6,000 pounds of seed cotton per acre.

Again, there will be found an experiment showing the great advantages of using the whole compound—the beneficial effect of the addition of land plaster and salt to Peruvian guano and dissolved bones. This formula was produced by Mr. Dickson, and was the result of a vast amount of experimenting with all kinds of guano, and is as near perfect as manure can be made.

With this mixture, together with his improved system of farming, Mr. Dickson has produced those "fabulous" results with which he is accredited. Before the war, his crops averaged him from ten to fourteen bales cotton per hand, and nearly one bale per acre, besides an abundance of corn, fodder, bacon, etc. He raised enough bacon and grain to pay for two-thirds of his guano. He cultivated and gathered fifty acres to the hand—16½ in cotton, 16½ in corn and 16½ in small grain, or as near that division as practicable. Such was his economy of labor, and his system of management, that a visitor might ride through his farm without seeing a weed or a bunch of grass in his crop. His hands would gather—some of them 3 bales of cotton per week, and many of them two bales, during the favorable part of the season. Corn and fodder were always stored around him in abundance. I have seen much of his crop for the last three years, and have not seen many acres in any of these crops that I estimated at less than one bale to the acre. True, the crops that I saw were on the best part of his farm, and received the most of his attention. I saw a field of his last fall planted in June, that had fourteen hundred pounds of cotton to the acre. Mr. Dickson says that last year (1869) was the driest and hottest year he ever saw; that he had but one rain during the summer, and that in August. And yet he made a good average crop.

I saw his crop in November, and consequently know what I say. He made last year—that is, all his tenants, black and white—between seven and eight hundred bales of cotton. These facts verify what Mr. Dickson claims for his system of farming—that good crops can be made with the least rain that can fall any summer, and that if the work is properly and thoroughly done, there need be no such thing as a failure. The many reports made by visitors and correspondents, as to Mr. Dickson's crops, are substantially true. He has had unprecedented success during his whole farming career, without a single failure, and still sustains his reputation by producing larger and still larger crops. He has no successful rival as a planter; and it may truly be said of him, "he stands at the head of his profession."

He once bought a plantation, with the negroes, stock and every thing on it, and paid for the whole with one crop. He did not visit the place but once a month, had the same number of hands and paid all charges. In 1859, Mr. Dickson, with fifty-six hands, made and gathered six hundred and sixty-seven bales of cotton, besides one hundred dollars' worth per hand of bacon, corn, etc.

So successful was Mr. Dickson in making money by farming, that his little plantation of two hundred and sixty-six acres rapidly extended its area, and now, in the language of a correspondent, "he owns the domain of a prince." When the war began, his property was worth by fair estimate $500,000, clear of all encumbrance. This he had made in fifteen years by farming, with a capital of $25,000 to start with. Not a dollar had been made outside of his farm. Here is a striking contrast between the profits of trade and merchandise and farming. It took him fourteen years at a trade to make $25,000; but during the fifteen years succeeding, he accumulated $500,000 by farming—not counting four hundred bales of cotton, and a large supply of bacon, and grain, given to the Confederate Government, and burnt by Sherman in 1864. He delivered to the Confederate Government four hundred bales of cotton, for which he got bonds which were never paid; and after the first year of the war he planted no cotton, but raised provisions for the army, and for most of which he received no pay, not even in Confederate money. General Sherman burned four hundred bales of cotton, took all his stock, and a large amount of provision. He owned two hundred and fifty (250) select negroes, which were worth fifty per cent. more than the average of negroes.

Since the war, Mr. Dickson has been planting cautiously, "not caring to save money till we had a Government that would protect us in person and in property." He says his crops have been fair, but his dividends less than before the war, because of bad labor, stealage, killing stock, etc. He is now working on the tenant system, and is again making his nine hundred bales of cotton, including his Texas crop, and declaring good dividends. He uses the "Compound" exclusively for all crops, and plants the "Dickson Cotton." He owns thirty thousand acres of land, and a good deal of railroad and company stock, besides his plantation stock, farming implements, etc., amounting in the aggregate to not much less than half a million dollars. Add to this amount his losses from the war, and the emancipation of his slaves, which he says were "worth $300,000," and the reader can approximate what would have been Mr. Dickson's wealth, as the profits of twenty-five years' farming, on a capital of twenty-five thousand dollars—losing near five years of this time, for during the war he planted no cotton, but raised provision crops for the Government.

Estimating all these losses, who can say that Mr. Dickson would not have been worth to-day one million dollars but for that unfortunate war that swept away his earnings?

Mr. Dickson has always lived well, entertaining a great deal of company in sumptuous style, and allowed himself every comfort and luxury that heart could desire. He has devoted more than half his time, since he has been farming, to his visiting friends, who, attracted by his fame as a planter, came from all parts of the United States to see his farm, and obtain information in regard to his system of agriculture. He has ridden with them thousands of miles and through all kinds of weather and written and read no telling how many wagon loads of letters, besides his contributions to the agricultural journals.

Having an innate fondness for agriculture, Mr. Dickson gave himself to its study with all the zeal of a devotee, and would have given it all the energies of his intellect, but for the diversion occasioned by constant interruptions and taxes upon his time. In estimating the sum total of his success in his agricultural pursuits, a large sum must be placed to his credit for this loss of time. For many years past, not a mail, perhaps, that does not bring him from a dozen to several dozen letters, to be read and answered on the subject of agriculture. True, he is delighted to see them come, and often invites company; yet, the attentions thus necessarily devoted occasion neglect of his business, and lessen his products.

Very many persons think that Mr. Dickson's reports as to large crops are taken from his fancy brag patches, and that his general crop does not correspond. This is uncharitable, as well as untrue. He claims credit for his general results—so much corn and cotton per hand. Like a general in the army, he operates from his headquarters at home. His farm consists of many little farms, which he seldom visits. He furnishes the implements and material, and gives direction; but the execution of the work is entrusted entirely to the laborers, having no overseers or superintendents; nor had he ever occasion for them even in slavery times, except on one place. It is evident, then, that Mr. Dickson's success has been attributable to the advantage of his system of farming, together with his general policy and management. He has been richly rewarded for his zeal and research in the study of agriculture; and the reason that so few people approach him in his results is, they do not follow his teachings, or his practice. Success depends upon the adoption of his system as a whole. Guano alone is not the "potent charm;" neither is deep breaking of land, or subsoiling, or surface culture, or rotation of crops; but all these agencies must be taken in combination. The neglect of one may paralyze the whole. This system is drawn from the study of nature's laws, and not one of its precepts may be safely violated. Many who undertake to follow the Dickson plan of farming do it only in part, and consequently the failure. Its beauty and strength consists in the union of its parts.

Adhere rigidly to the principle, and carry out in practice. Study it as a system—as a whole. Execute it with tact and judgment, and confidently expect results approaching the success that has rewarded the labors of Mr. Dickson.

The dividends of stocks constitute the true test of their value—so the crops, and clear profits, are the tests, and indicate the practical value, of any system of farming. Is it not wonderful—not to say incredible—that in the poorest parts of Hancock County, Ga., a man can take $25,000, and double it twenty times in fifteen years? And yet it is true with Mr. Dickson. He has done that, and during the time has used, for his own household expenses, during the whole time, fully seven per cent. on the $25,000; and has not invested a dollar in trade or any speculation during the time! The people of Hancock County will vouch for the truth of this statement. I state these facts that they may encourage young men to effort and enterprise, and demonstrate to them that farming, as a vocation, can be made lucrative; for it is certainly true, what has been accomplished by one may be accomplished again by others! Mr. Dickson's success as a farmer seems really beyond comprehension.

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INTRODUCTION

Agriculture as an Applied Science.

Agricultural science comprises a knowledge of soils, their general properties, class and chemical composition; also the natural history of plants, their habits, wants, physiology of assimilation, growth, reproduction, etc. It also involves the study of the atmospheric air and water, the two great vitalizing elements of both animal and vegetable life. These with the natural laws governing these elements, and their mutual relations and influences in the growth of crops, constitute the basis of agricultural science; and practical familiarity with all these subjects, as applied to farming, is essential to intelligent agriculture.

How can the cultivator be expected to know the importance of breaking, subsoiling and cultivating lands for the production of crops when he knows nothing as to the chemical composition of the air, and the vitalizing effects it has upon growing crops? How could he conceive of the importance of husbanding the spring rains, and storing away a bountiful supply for the summer crops, without the knowledge of the chemical and material value of rain-water in bringing to the soil ammonia, carbonic acid, and other fertilizing gases from the atmosphere, and its active agency in dissolving the organic and mineral substances of the soil, and thus making them assimilable as plant food? Rains are not alone important for moistening and softening and mellowing the soil so as to allow the crop roots to readily traverse and penetrate, but equally important in a chemical and philosophical sense. Hence, agricultural science teaches the practical importance of deep, mellow soil, calculated to hold and retain sufficiency of moisture for the crops during their season of growth and maturity. Upon the same basis must be placed the application of manures to soils and fertilizers to crops. How can the farmer intelligently compost his manures, or select fertilizers for his crops, when he knows nothing as to the chemical composition of soil, or the organic constituents of crops to be grown upon it, and hence knows not the chemical wants of his crop? If the cultivator knows nothing as to the design of nature in putting forth roots and fibrils to every plant, how can he be expected to intelligently decide as to comparative benefit or injury resulting from deep or shallow culture? How can he calculate the extent of damage he is doing his growing crops by rudely invading the soil that has been allotted to them, and cutting off the roots—through which, alone, the crops reach and utilize the soil for support and growth? He knows not that he is violating the laws of nature by interrupting a process which nature has instinctively designed for the benefit of this growing plant?

Science teaches what are the real objects of cultivation. Destroying the grass and weeds, and thus saving the entire strength of the soil for the planted crop, and so breaking the surface soil as to admit the atmospheric air in the soil beneath, as a nutrient and vitalizer. Deep culture also effects both of these objects, but no more efficiently than the sweep culture, and with the decided disadvantage of tearing off the plant-roots, and thus depriving the crops of their main agents and source of support, which stunts and cripples the plants and absolutely foils the designs of nature, and seriously injures instead of benefiting the crop. Nature does no superfluous work. She puts forth to her plants no supernumerary root or rootlet, not absolutely needed by the plant for its growth and development. Hence, by deep culture and root-cutting we violate the laws of nature. Science clearly teaches its agriculturist the importance of strictly conforming to and fostering the designs of nature, and it plainly teaches the policy of conserving and utilizing not only the shower and the sunshine, but every available element and agency.

By the teachings of agricultural science, the planter can intelligently compost his manure heaps, and select his fertilizers for his several crops, according to the soil he cultivates; and such discriminate selection is not only important to the growth of the weed, but to the final development and fruitage of the crop. It points out rational methods of culture, and general treatment of each individual crop, by furnishing from its natural history the special and peculiar nature and development of each individual class of crops. For instance, cotton is shown to be a sun plant, and especially adapted to a certain latitude, where it grows and matures more perfectly and is comparatively exempt from pests and casualties. This favorite belt is known to be in latitude 30 to 34 degrees. The evidence of its being a sun plant is seen in the fact that, as soon as the sun rises, the cotton plant holds out the broadest surfaces of its leaves to the sun, and continues growing till killed by the frost. Its habit is to elaborate the food, return it to the squares and bolls, and thus mature the fruit rapidly so as to escape the worm and frost. Science also teaches from this same peculiar habit of cotton, that, to mature the greatest quantity of it before the frost comes, or other casualties attack it, it must be planted thickly in the drill, in order that the fruitage may be hastened.

From the same teachings, corn is known to be an annual, delighting in a latitude higher than cotton; and that the higher the latitude in which it will certainly mature, the larger the yield per acre—everything else being equal. Unlike cotton, it begins elaborating substances for the grain at once, and returns it to the storehouse in the center of the stalk to be brought out at the proper time of shooting, and maturing the ear.

This point of natural history teaches us to give the stalks good distance instead of planting it thick as we do cotton. If there should not be enough soluble matter for two stalks the result would be no ear, or a very small nubbin. If there be only one stalk left, and there be enough soluble matter in the place allotted to that stalk to make two ears, the one stalk will absorb and appropriate it all and even more, and the one stalk will make from two to four ears of corn. Another important scientific fact connected with corn culture is that, when given good distance—so many square yards to each stalk—it will make a larger crop in a dry year; and, if seasonable, a single stalk will always be double-eared, provided the soil be fertile and in good heart. The higher the latitude, the thicker the corn may be planted, but even then it can be over seeded; such facts indicate, and experience should determine what should be the distance given this crop, never to exceed the number of stalks sufficient to give the yield which you believe the land ought to make.

As thus seen, agricultural science is based entirely upon natural laws. From nine-tenths to nineteen-twentieths of all the substances that sustain animal and vegetable life, and build up bodies, come from the atmosphere; and hence the lesson taught us by science, to so treat, prepare and cultivate lands as to utilize this element to the greatest possible extent for the benefit of growing crops. The more or less efficient execution of these lessons of science, as applied to the treatment and keeping up of lands, the recuperation of exhausted and the enrichment of poor and unproductive lands, will constitute the triumph of science, allied with administrative genius, in attaining results worthy the name of successful farming.

The great object of study and practice is to know how to utilize the atmosphere, and to work up the manures into the soil. We have but few text-books on this subject. We have to begin almost at the beginning. When these subjects are reduced to practice, and written out in the form of text-books, the study of agriculture as a science will be comparatively an easy one; but under no circumstances will the work ever be performed with success unless with preparation by the planter, and study of all the laws, practices and arts, times and mode of cultivation. One object should be to utilize water, and to make the greatest yield from the least water; and there never has been a year when there was not water enough to make fair crops, provided the cultivation was done with care and science. I believe the cultivation of corn can be carried to such a point, that you can make a full crop with two good seasons.

TEACHING LABOR TO BE MORE EFFECTIVE.

No system can prosper without teaching all the operatives and laborers to be experts, whether agricultural or manufacturing, or anything that is done requiring labor. The first thing to do, in regard to any of the operations of labor, is to teach the laborers how to do it; the next thing, to do it with more ease and efficiency, and to learn to do better work every day. For instance, take a boll of cotton. They must be taught, with the greatest speed, how to throw the hand into the boll, and pull out all of the cotton with one lick, not waiting to see whether any is left in the boll or not, always having in mind to strike out one lick at the boll, and as soon as that is done, to strike at another boll. I have, in five minutes, taught a hand to pick one hundred pounds more of cotton per day than he had picked on the previous day, and from that point he will continue to improve. The greatest efficiency I have obtained in hands picking cotton was eight hundred pounds—equal to more than three good bales a week.

The same improvement can be made in other species of labor on the farm. One hand will plough so as to fatten his horse, doing a full, good day's work; while another hand will do inferior work, hardly so much as the other hand, and reduce his horse to poverty. A hand using a sweep or plough can arrive at such efficiency that he can do the ploughing and hoeing and go his sixteen and two-thirds miles per day, which is a day's work. This is my practice, not having to put a hoe in the corn field, and having had the cleanest crops in the neighborhood.

The same efficiency may be acquired with the axe. Quick motion; throw the axe with the proper spring and line, so as to go precisely to the line, with a sleight that will knock out the chip.

The same thing with the maul and wedge. One man will make rails with less than half the labor another does. If a laborer will watch these experts, and do as they do, he will effect the same results.

With the hoe, some hands will chop and motion a dozen times at a bunch of grass; an expert will keep his hoe sharp, and pull it through the row, leaving everything clean behind, and can strike any time to the sixteenth of an inch of the place he wishes.

The same thing is true of the hewer using a broad-axe. One will strike a dozen licks to get to the line, the last one will probably go through the line into the timber. The expert, with his improved eye and motions, strikes to a hair's breadth the first lick of where the line should be, and carries it equally through to the bottom of the timber, doing from two to three times the work of the botch per day.

Still more true is it when you set experts to manufacturing, making shoes, or tending machinery of any kind. One operative in a factory will draw three or four threads while another will draw only one, or will attend to four looms while another will attend to but two.

There is a great difference also with wagoners, one requiring double the time to gear his team that another does, fumbling around his team, hunting up things to do, and so losing two or three loads on the plantation in a day with a six-horse team, and losing enough to pay for three experts per day.

The same improvements may be made in art and execution in using plantation machinery and gearing that can be made in any other profession and art.

During last year I learned some valuable new lessons. One was the training of hands to do double the amount of work, with more ease, and less of sweat and muscle. My former hands, being better trained than others, had better offers than I could give, and nine-tenths of them left me. I then employed hands from as many as forty plantations, and got none that knew how to work to any advantage. I had hands before the war that could pick eight hundred pounds of cotton in a day, all by daylight; and all hands that went to the fields averaged three hundred pounds per day, without any white man in the field.

In my system of deep preparation, thorough manuring, and surface culture, the results depend altogether on the time and judgment when to work, where to work, and the style of the work. To be successful, and to pay dividends, you must do the greatest quantity of the work with the least labor. That art is acquired by study and practice. To attain it, you must approach the perfectness of a juggler, or sleight-of-hand man. With a peculiar sleight, one man will throw an axe into a piece of timber, with half the force of another, and with the same or better result. It is absolutely necessary to come to time. All the operations should move at once; this is just as essential as it is for a team of mules in a wagon. To perform all these things successfully, you must have absolute control over the laborer. Every farmer should teach this art to his laborers. If the farm hands on one plantation only learn this, they will always be offered inducements by other planters to leave. The hands on the place should be taught to do every kind of work with facility and ease. Nothing pays so well in hoeing as to get every sprig of grass. Taking up a bunch of grass injures a crop of cotton equal to bad ploughing, if not perfectly done.

The science of agriculture is soon learned, and is of incalculable importance; but nothing to compare with the execution of details. Many of the Confederate generals of the late war had the same military education and book training as General Lee; but none of them came near executing as he did. Two planters may have the same knowledge of planting, while in executing, one will get rich, and the other break, though thinking they were operating upon the same system of farming.

To enumerate, in brief, a few of the mottoes of success in farming, I would say: Always come to time, and keep a little ahead, and the work will be easy. Do the winter work in the winter, and the spring work in the spring, and do it well. Cultivate a little ahead of time. Gather as soon as crops are ready. The most important part is the judgment when to plant, and how and where to work, and with what tools, and what part of the crop to work.

In hoeing, always have sharp hoes, and use only the force necessary to the particular object, raising the hoe only six to eight inches, and more licks can be made. Only get under the crown of the grass. Always be governed by natural laws and natural causes. The style and expertness of the work are no small things; so with judgment in coming to time, and working at the right place and in the right style of work, etc.

Those who may presume to call my plan of farming a failure, either do not know it, or can not execute it. The dividends of stocks are the true tests of their value. Crops and dividends are the true tests of any system of farming. I would fain shrink from saying anything about my planting, but my practical success has been so beyond comprehension, and so known by my Hancock friends, as induces me to report for the encouragement of all enterprising young farmers. Is it not hard to believe that in the poorest part of Hancock County, Georgia, a man can take $25,000 and double it twenty times in fifteen years? But it is true, and in the meantime, I have consumed at least seven per cent. of the capital for my family expenses.

One of the most important things to learn is how to control labor and how to have your laborers in place, and all move together at once, doing the work the easiest way, but for the best effect.

I am writing of old times. I teach all my hands to be experts—to do the work better and faster than others. I never knew how little work other farmers got out of hands before the war. My old hands could do fifty per cent. more work and with more ease, than any I have ever employed since. Each one could do any kind of work done on the farm; the new comers could do one or two kinds of work, and that not well. But some people can not believe that anything can be done which they can not do themselves. Dr. Lee once remarked of my farming, when on a visit, "Mr. Dickson has demonstrated to men of small means, that not only a living could be made on poor land but a large fortune, and that as the great majority of land was poor, there was no calculating what might be done by careful study of the science of agriculture and the art of farming."

IMPORTANCE OF INFORMING YOUR MINDS.

Some men are born generals, some mechanics, some orators, some farmers; some adapted to one profession, and some to another; but the great mass of men have to read, study and practice, to become efficient in any calling they may select; and if they apply themselves faithfully, and do not rise above mediocrity, they should quit that business and try some other. Whatever has been accomplished by man can be done again, and ought to be done better, with all the accumulated knowledge of the past before us.

What is book-farming? It does not mean to take a book in your hand and go to the field; but it means you should read and study everything that you can possibly bring to bear on farming, and store it away in your head. But be sure to master the subject, and learn the true plan. This is the science of agriculture. Study bad practice as well as good, and learn of the latter the errors, that you may avoid them. Read books until you become so perfect in theory and the use of tools and manure that you will have confidence and the nerve to act, and act at once—not lose time running about to your neighbors, to see when to do a thing and how to do it. Do not let frost, or wet or dry weather cause you to doubt or dally. Fortify yourself with books before you begin—such books as will teach you everything necessary to your success; and do not forget that you can learn something from almost every profession.

Book farming means for the farmer just what book-learning does for the physician. The medical student must read all the books and attend all the lectures, and the dissecting room, until he can pass, then take his medicine and instruments, go out to practice and test his knowledge. So with book farming. You must read and study, not only agricultural books, but all books that would apply in any way to that profession.

You need the knowledge of a general to enable you to discipline your laborers to come to time—to move all at once—to know when to charge, when to retreat. You need the knowledge of a banker, when your money is made, to know how to invest it (and this is a very important point). You want the knowledge of a bookkeeper, that you may keep your accounts correctly. In this, many farmers fail—they fool themselves, not knowing how to keep their debtor and creditor accounts—get in debt and become bankrupts before they are aware of it. You must have some knowledge of mechanics and machinery, or you will never know how to keep implements and machines in order or use them; and if the farmer is ignorant, how can he instruct the laborer? You should even have a sufficient knowledge of law to know how to keep out of the courts. You should have some knowledge of commerce and trade, for you have to buy and sell. You should learn from the merchant order and punctuality. This is no small item in a lifetime business.

How is all this to be acquired? By reading and hard study, and making an application of the knowledge ac-

The Right Kind of a Farm Home.

quired. Knowledge is power, in agriculture as well as other things; and how are you to get knowledge? Only by reading, study, and application. With knowledge, you can use the hand as well as the tongue more effectively.

You must learn the use of tools. A man that has a perfect use of tools, can do double the work one can who knows nothing about their use. Railroads and steamboats have brought men together, and have furnished a partial remedy for want of books.

I would ask you, can you tell what the farmer is now gaining by the use of manures and by the knowledge received through agricultural papers? Or can you tell what is lost to Georgia by not taking the agricultural papers, and keeping up with the improvements of the day? By reading agricultural papers, each farmer may learn and practice all the improvements of every farmer in the State. Who would not subscribe and pay for an agricultural paper, for such a reward as that?

No man has a right to put his light under a bushel. Farmers, come out, and let your lights since! If you can not afford to give it away by contributing to THE SOUTHERN CULTIVATOR, put it in book form and sell it. If you have improved tools, take out patents for them, and sell the rights, or give them to the public.

Young men, read, practice, and qualify yourselves for one of the noblest of callings. Do not commence where your fathers did, but where they are now, and where the best farmers in the State are, and being young, active and vigorous, make every effort to surpass the best. Be assured there is much to learn yet.

The three great essentials are: first the theory (true plan) of farming; second, the art of controlling labor, and executing all work to the best advantage with least labor; third, (last and best), success depends on quick perception, wise judgment, that seldom or never errs. How is this to be acquired except by the use of books, in conjunction with practice?

In conclusion, I may say, to succeed, you not only must be superior to your laborers, but you must be so far ahead of them that they shall know that your plans are wise, easy to put in practice, and certain of success. Then they will follow in a charge, as good soldiers will the best of generals. The laborer must have confidence in the man that directs. How are all these qualifications secured? I repeat through books, hard study, observation and practice.

DAVID DICKSON.

CHAPTER I.

THE FARM.

The farmer should select a farm of fertile soil, or soils capable of illimitable fertilization. It will not pay to cultivate poor or exhausted lands. If not productive, they must be made so by proper treatment.

It has been clearly demonstrated that certain soils are especially adapted to certain crops. Corn will grow better and make better yields on certain classes of soil than on other and different soils. The same is true of cotton. One farm will successfully produce grain crops, while another grows cotton more profitably.

The farm land and quality of soil should be selected in view of the crops proposed to be raised. For the growth of corn I would select a soil of black prairie, blue limestone, brown or mulatto soil with a moderate gravel; also, what is called strong land of the river bottom.

I would prefer brown or mulatto land—with moderate gravel, for cotton. The subsoil should not be retentive of water, but should let the water percolate through, yet not open enough to leach the land. From my observation I find this kind of land more productive. I find such soil makes the stalks more bushy and prolific, and bear better through the season. The fruit comes thicker on the limbs, and there is less falling of squares. The most sandy lands may be profitably cultivated by sticking the particles of sand together with vegetable mold; and it would be a great addition to add muck or river mud, or any other substance that would measurably adhere the sand, and make it dark enough to prevent reflection, and close enough to hold the water. Cotton can be cultivated on sand in this way. Sandy land, I consider the lowest grade, and the sandier the land the lower the grade.

For wheat, I would take the very same soil as for cotton. Wheat will succeed better on the heavier lands than cotton.

For oats, the same may be said. I do not think there is any particular difference between oat soils and wheat soils, but oats will grow better on low, flat lands than wheat.

Wheat requires land that is better drained, either by natural or artificial means.

Rye will grow anywhere corn will, and do better on light or sandy soil than wheat or oats.

The farm should, by actual or imaginary lines, be laid off into divisions so as to be cultivated on the five-field system.

I would have a permanent pasture. One field should rest, one field should have cotton, one corn, and one small grain. I would put in cotton after rest, corn after cotton, small grain after corn, and rest after small grain. If you have only five fields and wish to keep up the vegetable mold to a desirable standard, sow peas after the crop is off, always using commercial fertilizers as the most desirable in all kinds of farming. In using commercial fertilizers you should not overlook the point of saving home manures. The more fertilizer bought, the more home manures should be saved and applied to the farm.

One of the objects in the system of rotation of crops recommended is seen from the fact that all plants do not receive the same kind of material from the soil; one kind draws more phosphate and another more ammonia, and some draw very little of either. If you were to plant one kind of crop alone you would soon exhaust the land of that particular kind of nutritive element required. I would let the land rest in order for it to accumulate vegetable mold, and to make it produce more, annually, than it would without rest, and thus save labor. The vegetable mold would keep the land open and porous and soft so that the roots could penetrate through it.

I would plant cotton after rest, because the land is then in a better condition for the cotton, there being no corn stalks in the way, and less crab-grass, to obstruct its growth. Experience has also shown that the land, when cultivated in cotton after rest, will produce a healthier weed, and will retain water better to keep guano soluble. The vegetable mold darkens the soil so that it will receive the heat better and keep it up better during the twenty-four hours. It does not throw the reflection of the sun back on the plants to burn and scorch them. The vegetable mold in the land from the rest is becoming soluble the year round, and during the growth of the crop, and when partially decayed it acts like a sponge in holding the water and letting it out gradually to the roots of the plants. If there should be a surplus of water, it leaves the land porous enough for the water to pass through into the subsoil and prevent its damaging the crops.

It is proved by experience that corn grows better after cotton than after any other plant, and that it is more easily cultivated. It makes heavier and sounder corn. Corn, when cultivated on my system, leaves the land in a beautiful condition, and there is less labor necessary to prepare the land for small grain. The corn crop could be gathered in time for the small grain, while the cotton crop could not, and these are the only two summer crops. The reason that I prefer rest to succeed small grain is because the land is then smooth, no open furrows to wash, and is covered with stubble and small grass to protect it.

Chapter II.

GENERAL TREATMENT OF LANDS.

In the treatment of lands lies the main secret—the source of success or failure in all agricultural pursuits. As a single item or specification in my system of farming, I attach more real importance and practical value to this than to any other one subject connected with the study and practice of agriculture; and to my special attention to and method of treating my lands, do I, in a very important sense, attribute my aggregate successful results as a farmer. It is a part—an essential component of my theory and plan of farming; and to dispense with its due consideration and practice, would simply amount to disparagement of success in the whole enterprise.

We have sketched the Farm, the adaptation of crops to soils; the qualification of the farmer for planning and executing the work, and the importance of framing his operations upon rational and scientific bases; and we come now to the ground-work—the grand basis of permanent and aggregate success in all farming.

There is no point or step co-equal in importance, in view of successful farming, with that of proper and conservative treatment of lands. It constitutes the main-spring,—the essential policy in all farming. It is the first lesson for the planter to learn, and an imperative duty that he may not, with impunity, neglect—to keep his lands tillable—in good healthy state for cultivation.

In common routine farming, the treatment of lands, to the end of improving or even keeping them up to a healthy standard—is most woefully neglected, or misdirected through want of scientific guidance. To cultivate poor land is folly. It can not pay. If not rich, it must be made fertile; and if it be rich, it must, by proper treatment, be kept in good heart, and constantly improved in fertility. It must not, by neglect or mismanagement or by botchery, be permitted to run down and exhaust itself, as is too true of a very large acreage of the lands of Georgia and the South, which are now refusing to produce paying crops—and purely for the want of conservative and scientific treatment.

MANURING LANDS.

There are just as many ways to preserve and improve land as to waste it; and by close economy and industry, you can gather the fertilizing elements much faster than they are wasted by the crops. Nature helps to waste, and helps to return. The rains leach and wash away fertility, while plants and evaporation from the sea return it to some extent to the land. Hence, let everything made on the farm, after it is used or eaten, except the lint of cotton—which takes away little from the soil—be returned to the land. In addition, gather muck, scrapings of swamps, leaves and pine-straw, and carry to the nearest field, and scatter broadcast. Don't be afraid of mud and pine-straw hurting your land—heat and moisture will make it right. All vegetable matter placed on your fields, will, in due time, turn to corn and cotton. Handle manure as little as possible but handle a great deal of it. The field is the place to make it, the plough to stir it, and the sun and water to turn it into corn and cotton. But before putting it on your fields in this way, use enough muck and straw in your stock-yards to absorb the ammonia of the stock drippings, and take up the urine, and have as much of this saved—under shelter—as possible. Once a week sprinkle it with plaster. Do not handle it or pile it. The first time you stick your fork in it, pitch it in the wagon and carry it to the field. Make every lick count. Manure loses every time it is turned or moved. Let all your spare time be spent in gathering new lots of manure. Carry to the nearest field at once, but not to the lot to get twice as heavy by the addition of water.

I prefer this diffuse and economical method of applying this valuable class of manures, to that of raking and shovelling and loading and carrying to the compost heap—and then penning and sheltering, and then again tearing down, loading and hauling to the field. Let it lie under the shelter till breaking or planting time and haul immediately to the field; this saves labor that might be more profitably employed in gathering up other manures. Instead of penning stock to make manures, let them range the fields. Leave a shade-tree for every twenty-five acres of cleared land. The stock will feed until full, then go to the shade to rest. They drop but little manure till they get in motion—twenty to one hundred yards from the tree. Place salt over the field in right places. Pen your straw and shucks in occasional places over the field, that the stock may gather and litter around them. The cheapest and best plan to save manure from stock while grazing or eating off crops from fields, is to have the manure dropped by the stock where it is needed. The urine soaks into the soil at once, and the excrement, like a post, commences rotting at the surface next the ground, and being covered by the sounder part, the earth absorbs the ammonia as fast as formed. Stock while grazing drop manure regularly over the field, and the object of giving them shade-trees is to keep them out of the swamp. I contend that this plan gives cheaper manure, more beef and less labor than any other. Use manures everywhere you plow and plant, except in a hole of water, or on a rock. If you cultivate land, it will pay to use manure, and it will pay best on lands that pay best without it; the safest without manure is the safest with manure; and your labor will be more certainly rewarded by using manure on all the land you plant. You can and must accumulate manures in the same ratio as you buy it—the more you purchase the more you can make at home.

To get the full benefit of manures, lands must be rested to grow weeds, and accumulate vegetable mold. Also use it on the pea crop for the same purpose.

Peruvian guano and other strong nitrogenous fertilizers will exhaust land under any bad or erroneous system of farming. The mixture I recommend, under a good system, will make land rich.

The use of guano or other commercial fertilizers is objected to by some—thinking it lessens the interest in home-made manures. It should be made the means of doubling the wheat and oat straw, producing twice the quantity of weeds where land is at rest, doubling the quantity of peas and vines—and the more of all such manures produced and saved, the better guano will pay. I am in favor of

Plowing Fourteen Inches Deep—Actual Measurement.

making the land produce double what it now produces; instead of doubling the number of laborers by the importation of Chinese, double the productiveness of land, and it will be worth four times the present value. We want more manure, and the cities of the South can furnish it in poudrette, and add greatly to the health of the places.

RESTING LAND.

By this we mean, allowing it to lie without cultivation for one or more crop seasons, and allowing it to grow up in grass and weeds. This spontaneous crop—covering the land well over during spring and summer, and rotting and decomposing during the winter and spring, produces quite an amount of soluble vegetable matter for replenishing the exhausted quantum of vegetable mold and humus, without which in the soil no land can claim productiveness, or any course of manuring prove of much benefit. This dry vegetable matter turned into the soil likewise furnishes traces of ammonia and other fertile elements which tend to enliven and recuperate the soil. Such supply of vegetable matter is important for keeping the soil mellow and porous, so that it will readily take in the rainfall, with its fertilizing gases, and allow the crop-roots to penetrate and pervade it. It prevents lands from baking after heavy rains, and quickly becoming hard and crusty and impermeable to the atmosphere.

The treatment of the various classes of soils does not vary so much as might be supposed. Extremes are likely to meet, and rest exerts different valuable effects upon different lands aside from its general uniform results. Let a sandy soil rest to accumulate vegetable mold, to turn the soil dark and enable it to receive the heat, and prevent reflection and burning what is above ground; to hold a uniform heat, and so fasten the particles of sand together as to enable the soil more readily to receive and hold moisture--all of which effects are important besides the real and permanent increase of fertility. On the other hand rest a clay soil not only to accumulate vegetable mold, to deposit fertile elements, and to darken the soil—as in case of sandy lands—but also open the particles of clay, and thus pulverize the soil so as to receive the rains, let in the air, light and gases, and enable it to uniformly retain heat and moisture.

All lands should be rested at least one year in four; and the best time for rest is after small-grain crops. To make it more positively beneficial, treat it as follows: After taking off the grain crop, pasture the balance of the year. Rest from January to June or July the year after; then plant peas with manure; then feed off with stock. It will pay all interest and cost, and leave the land better for the next crop. The year after plant in cotton, then in corn and then in small grain, and again rest.

ROTATION OF CROPS.

The crops upon all lands should be changed occasionally; and it is practically important to change them every year under some regular system of rotation—such as my Five Field System, hereafter to be mentioned in these pages. Rotation of crops not only materially assists in furnishing the requisite supply of vegetable mold and humus—the standard of which must be kept up—but is likewise important in a chemical sense.

One object in the system of rotation of crops recommended is seen from the fact that all plants do not receive the same kind of material from the soil. One crop draws more phosphate, and another more ammonia, and some very little of either. If you were to plant one kind of crop alone for a number of years, it would soon exhaust the land of that particular nutritive element required. For instance, the clean culture of cotton lessens the supply and exhausts the nitrogen in the same proportion; but a crop of wheat or oats or corn, with the additional crop of grass and weeds, will replace all these exhausted elements—organic matter and ammonia, and besides, will furnish the soil phosphoric acid. Hence the benefit accruing from change of crops—not only to the present crop—but permanent improvement of the land. Rotation is a means of material importance in keeping up the land to a healthy and fertile standard, and can not, with impunity, be neglected by any practical agriculturist.

CHAPTER III.

FERTILIZATION OF SOILS AND CROPS.

I repeat, with emphasis, the practical importance of the two means suggested in last chapter for keeping up and positively enriching lands. I refer to rest and rotation. All these procedures directly furnish the soil with vegetable matter, and certain fertilizing elements—thus imitating the process of nature in the formation of original or virgin soil.

As an essential prelude to all direct and positive steps toward fertilizing the farm, we must mention proper drainage—ditching of the hillsides and draining the bottoms with deep and deeper plowing every year—in addition to the incorporation of vegetable mold in the soil as above directed, even if you have to resort to two green crops on the same land the same year; but be sure to turn your land deeply and subsoil it every year. Return the proceeds of all crops to the land—as near as possible—including cottonseed, pea-vines, wheat straw, etc. Make as much manure under shelter as possible, using straw, leaves and other litter to absorb the whole of the urine and excrement of the stock and no more. Utilize to the extent of your teams, all the scrapings from fence corners, swamp mud, muck out of the ponds and bottoms, spreading it over the lands; all barn-yard manure, preserved under shelter, and other rich scrapings. Everything made on the place after it is used or eaten, except the lint of cotton, which takes very little from the soil, must be returned to the land.

Use commercial manures on all crops planted, up to from one hundred to one thousand pounds per acre of "Dickson's Compound," which will be noticed directly on these pages. Soils are not to be considered up to their full capacity until you have twelve inches of soil and six inches of subsoil. It is a good plan to subsoil at least one-fourth of your crop lands every year.

The greatest of all the means of improving lands is to use liberally the commercial manures every year, and on all crops planted, because you not only improve the land, but it will also pay you to use them out of the crops grown. I consider this the "philosophers' stone" in all farming. You may talk of machinery for saving labor but there is no such thing as labor-saving where the liberal use of manure is neglected. No machinery, can possibly compromise the importance and absolute necessity of manures in all farming operations. They permanently improve lands, and at the same time, pay their own cost on every crop, and bring in clear net profits to reward labor and enterprise. But at the same time, while I consider annual application of good crop-growing manures the greatest and cheapest means of saving labor, they give you capital to increase your labor-saving machinery in the same proportion that they increase your crops. I would not deter the farmer from all labor-saving machinery. I look upon manures and machinery as the best means by which we can add to our present labor.

There are several points of importance connected with the application of commercial manures as crop growers which must be considered in order to obtain full fertilizing benefits. By former treatment of the lands, the soil must be properly imbued with vegetable matter and especially of vegetable mold, in order to prepare it for the process of chemical assimilation. When applied to worn down and exhausted soils, it fails to produce its full fertilizing effects; and hence in routine farming it is frequently said of it that it "burns up the crops and exhausts the soil." This is all for the want of sufficiency of vegetable matter to support and bring out the fertile powers of the guano. The absolute necessity is a proper system of farming.

In my practice, and on my farms, these manures have always paid me good profit besides steadily improving my land. It is a great mistake to say "guano has exhausted and ruined my land." It was exhausted before the guano was applied, and hence the failure was attributable to the farmer for using guano on lands that had an insufficient supply of vegetable mold to support the guano and develop its fertilizing effects. The richest barn-yard compost may as signally fail in the hands of an ignorant routinist whose lands are never rested and whose depth of soil is only two inches instead of eighteen.

PERUVIAN GUANO—Is obtained from *Peru* and the *Chincha Islands.* The prevalent opinion is that this guano is the deposit of birds. My own opinion is, that this deposit is a natural formation, the same as coal, iron, plaster, gold, etc., in those countries where they would be preserved for their present use. My reason for this opinion is founded on the enormous quantities of this deposit. In making a calculation of the number of birds that could sit on these islands and feed within a reasonable distance of each other, they never could have gotten a sufficient quantity of fish to produce the phosphates and ammonia that are found in the island, containing, as these guanos do, on an average, 16 per cent. of ammonia and 30 per cent. of bone earth. I have not the means of ascertaining the exact amount, but several millions of tons have long since been taken from these islands, and still the supply is not exhausted. Now, if a few birds have accumulated all this—occupying not more land than one or two counties to feed on—what can the whole multitude of farmers do, with their stock spread over the whole globe? *I say, that they can make every acre rich, if they will. Providence intended the earth should increase in fertility as rapidly as it does in population.* Every man that assists in removing this dormant guano, lying idle and useless on the Chincha Islands, and puts it in circulation, creating therewith food and clothing, is a benefactor to his kind. The country suffers for want of a share of the surplus fertilizing material. Remove the deposit, and apply it to our crops, and it will enrich the land, and even that which escapes will enrich the atmosphere, to be gathered in again by growing plants.

As already stated, in my practice, I have found Peruvian guano the best fertilizer I have ever used; and as in a large majority of manures, its principal value consists in the amount of nitrogen or ammonia it contains. Not undervaluing other substances, yet I consider ammonia at the head of the list.

I commenced the use of guano in 1846, and gradually increased the use of it until the present time—never having omitted to use it on my crops excepting the last years of the war, when I could not obtain it. With a proper system of rotation of crops, and returning all the crops to the land, except the lint of the cotton land, may be improved with Peruvian guano alone, but not so fast as when you combine with the soil all the elements of the plants to be grown. Ammonia being necessary for all plants, I know of no crop that it would not benefit. It will pay the best upon those crops that bring the most money—cotton being that crop in this section, and tobacco in other sections.

The direct fertilization of lands is effected by various manures, cottonseed, and a long list of commercial and manipulated compounds.

But as I am proposing simply to furnish the reader my own system of farming, I shall restrict my notice of manures to those only that I have used in my own practice, and which from long experience and successful results I can commend as valuable and reliable fertilizers.

AMMONIA

Is certainly the most valuable manure known to agriculture. I consider it the best crop grower, and the mainspring that puts all the rest in action. As already noticed, it abounds in Peruvian guano, and is the special ingredient that makes this guano soluble as a fertilizer. It is largely furnished by barn-yard manures and composts and also by cottonseed, and hence the value of these substances as strong and powerful fertilizers. The manure heap and the compost of lot manure and cottonseed attach their chief value as fertilizers and crop growers to the ammonia evolved. Ammonia is contained in the atmosphere and by the rain-fall is carried down and diffused in the soil. It is an ingredient of one of the components of the atmosphere, and an element in all plants. It is supplied to the soil by decomposition of plants and, hence the fertilizing value of green crops turned into the soil. The soil incorporates the ammonia and holding it as a fertile element, feeds it to the growing crops.

Ammonia being the most easily exhausted of all manures, it requires annual application to the soil for sustenance and growth of annual crops, and yet its impress is permanent upon the soil. Witness for instance, the lasting fertile effect of a pile of cottonseed or heap of wheat-straw upon a certain spot of ground. It will show itself for ten years to come, and luxuriant crops will annually mark the spot. Hence, we say of ammonia, it is the chief of all the crop-growers, and the most substantial fertilizing element known to the farmer and horticulturist.

DISSOLVED BONES

or phosphate I consider second in value as a fertilizer —it being one of the most important ingredients in the chemical composition of the grain and seeds of plants. This substance forms the basis of many of the most valuable commercial phosphates and compounds now in popular use as fertilizers. Of these their value depends on their solubility. While insoluble they are worthless to growing crops.

POTASH

I consider of third rate, or mere nomial value as a fertilizer, compared with ammonia and the phosphates. It is not of much value as a crop-grower, but seems to act beneficially upon some soils by dissolving and thus reducing some of the inorganic and mineral substances of the soil to an assimilable condition.

LAND PLASTER AND SALT.

We mention these, not as positive fertilizers, but as in some sense adjuncts to the two prominent fertilizers last mentioned. These will pay their cost; but their greatest value consists in keeping the other manures active, preventing rust and assisting crops in standing dry weather.

With sufficiency of the above-named manures, viz.: ammonia, dissolved bones, land plaster and salt, the crops will be enabled to find most of the other ingredients necessary for their development and maturity. It is admitted that every article composing the plant must be present in the soil, but I do not think that they should be in exact quantities. It will do to have more of one ingredient and less of another. My favorite "compound"—presently to be noticed, is about as near perfect—in point of supplying every element of plant food—as a manure can be made. It does not put you to the trouble of getting all the ingredients of plants and combining them, the four principal ones enabling the plant to find the others that are necessary. Should they fail, all economical means should be used to find out what particular item is wanting and supply it.

"Dickson's Compound."

After twenty years of diligent research and study of the laws of nature as applied to agriculture, with the experimental use of Peruvian and other guanos upon soils and crops, I have determined upon the following combination of commercial manures as the best and most valuable for all crops:

Formula, "Dickson's Compound."

Peruvian Guano	100 pounds
Dissolved Bones	100 pounds
Common Salt	100 pounds
Land Plaster	50 pounds

Well mixed.

This compound I have now been using for many years upon all my farm crops, and unfailingly with satisfactory results. In my hands and under my system of farming, this compound has never failed to grow me good crops and bring me satisfactory dividends. It has always paid me, and my clear profits have always been larger in proportion to the amount of the compound applied—up to one thousand pounds per acre. I have long since learned not to fear failure of making paying crops no matter the season.

This year, (1869) has been the driest year that I have known since I have been farming, there having fallen very little rain since the 27th of April. At this time, November the 8th—many branches and creeks on my place have not a drop of water in them. My mill has not turned since the first of May, and there is not a drop of water in the pond, though I have an unusually tight dam. It has been one of the best years for testing the value of the different modes of farming, in my whole farm experience. The negroes have notions of their own, and I have thought proper to let them be convinced of the value of the "compound" by their own experiments. Some of them have used on portion of the crop bone and Peruvian guano alone, others used on the balance of the crop the full "compound." They are enabled now—at any time day or night—to see the difference between the effects of the full "compound" and the bone and Peruvian guano alone—the crops grown with the compound grew better, kept greener, made larger ears of corn and more of them, and finer cotton.

This year has been considered one of the most disastrous for rust, but I have had less rust this year than usual, not exceeding one or two per cent. on the plantation, and having a great deal of land that is subject to rust. I I tried this year an experiment on a plot of land that failed to make cotton fifty-two years ago. I planted that plot on the nineteenth and twentieth of May, and the cotton on it was flourishing, with no rust, except on about one-half of an acre of the water-oak land on one edge. It has produced the largest bolls of any cotton on the plantation, having used about 800 pounds of the "compound" to the acre. This plat has produced, I believe, and all visitors think so too, no less than one bale per acre. It would require no less than 400 pounds of the compound to do this, still any one will find that it will pay a good interest on the money to use a thousand pounds of the compound per acre. No man should object to making an investment in this compound when he is paid from four to ten times the interest on his money that he would get by loaning it to a bank, a railroad or his neighbor. The true test for deciding what is the most profitable amount of manure to be used, is to take off the legal rate of interest on the amount that is used, and then count the dollars they have made over, and not the per cent. that any given quantity makes. For instance, you would use one hundred pounds of it to the acre, the cost being, say, four dollars per hundred pounds, the interest would be twenty-eight cents; it would gain six dollars, making one hundred and fifty per cent. There is six dollars made per acre above the rate of interest. If you use 400 pounds per acre at a cost of $16, the interest is $1.12. If it only gained one hundred per cent. there is $16, showing $14.88 clear profit. I admit that there would be a less percentage, but the estimate is made in order to show that the profit is greater the more guano is used after deducting the legal rate of interest until you reach the amount of about one thousand pounds per acre. In each of these calculations, the labor is the same, and a large crop is as easily gathered as a small one. Large ears of corn are more easily gathered than small ones, and the same is true of perfect bolls of cotton. In addition to this, you have the advantage of the great stimulus to work that a fine cotton and corn crop gives to the laborers.

This compound I have used on all sorts of crops. I used it because I consider it the most perfect compound, and combining more approximately the several chemical elements entering into the composition of, and necessary

MANURE SPREADER—NEEDED IN EVERY COMMUNITY.

for the sustenance, growth and development of the several farm-crops.

In answer to the question frequently asked, to what class of lands is your compound applicable? I desire to state, that I have used it successfully and with remunerative results upon all my lands, including every variety of soil to be found in Middle Georgia. My lands extend from the granite hills in Hancock county, to the rotten limestone and long moss in Washington county; from red, rocky hills, to a blowing sand twenty feet to the clay, and from a mulatto soil to a pipe clay; and tell you if a farmer can make corn and cotton on a blowing sand, he can make them anywhere above water—off of a solid rock. So my compound is well-nigh applicable to all farm lands. *Can any man believe that ammonia and phosphates would even fail where a plow ought to run?* I have been often asked: "What kind of land pays best with guano?" I have but one reply—"land that pays best without it." Land could be so rich, that sixteen hundred pounds of ammonia would make but a small percentage of profit on investment; but we have none such in Georgia.

Land can be improved, and eventually made rich, under proper system of treatment and culture, by atmospheric agencies alone. But this agency can be greatly quickened by the compound. The better drained and preserved the soil, and the deeper ploughed, the more rapidly the land can be improved. The ammonia and carbonic acid of the atmosphere, continually formed and deposited in the land, will yearly improve the crops, which under proper rotation will leave more in the soil than they take from it. The richer a soil grows, the more will the plants grown upon it take from the atmosphere and the more rapidly can its fertility be increased. I do not underrate the value of any manure that supplies the elements necessary to make a perfect grain of corn or cottonseed; but I do attach superior importance and value to ammonia and carbon or vegetable matter.

Some classes of lands containing an excess of lime and other minerals, continued cultivation without the application of ammonia in some form seem to tire in productiveness and apparently become exhausted. This excess of mineral supplies in the soil renders all nitrogenous matters soluble, and the supply of ammonia is soon given off to the plants, whilst the manure has not been returned. Sow such lands down in cowpeas or clover, treated as already directed, and in two years the exhausted lands will be restored almost to virgin productiveness; ammonia is known to be the great crop-grower, but to command it, you must have all the necessary salts contained in the various crops. The more nitrogen or ammonia you store away in your land, the more you can obtain from the atmosphere.

I advocate mixing the valuable essential manures to grow perfect plants, as in my compound; but if you use only one, let that be ammonia, as it is the best and cheapest; but as it will be materially assisted by soluble bone, I add it in my formula, and also land plaster and salt. I think my compound well nigh a perfect manure, and it would be quite so with plenty of potash in the land; or added by sowing ashes. To be successful in agriculture the farmer must know where all the elements of plants are, and how to control them.

Plow deep and subsoil, use all possible manures to be had on the place, and purchase largely of the best manures in the market. Get manures, as perfect plant-growers as can be found; but you must have ammonia and soluble bone. With these, or my compound, you will have no use for second breaking.

I am friendly to all pure guanos in their natural state, but prefer mixing them myself, and saving the profit, and for one, will buy that manure that pays the best. It is not recorded in my book of practice that, by adding a fertilizer to land, I kill that land.

Fair, practical tests have decided in favor of ammonia as the chief of all known fertilizers. Under Northern and European systems, the farmers are improving their lands almost exclusively by increasing their supplies of ammonia, growing hay, clover, oats and rye, and keeping stock to eat these crops annually, not gaining, but losing phosphates and gaining nitrogen, making the land rich, and the land making the owner rich with luxuriant and abundant crops. In English agriculture, ammonia is the foundation as taken from the atmosphere, from Peruvian guano, from the turnip, hay, clover, etc., returning merely the manure by which the supply of ammonia is constantly increased faster than that of the mineral elements.

With a little ammonia we can gather large amounts every year, getting large returns from year to year, adding a little ammonia annually, and getting good dividends on the investment. I believe strongly in natural laws. Study nature, trace all things from cause to effect, and from effect to cause; but take no such extreme views as some do, advocating surface manuring because the trees drop their leaves on the ground, and hence, it is nature's plan to manure the surface. At all events add a little science, experience and art to assist, instead of invalidating the wisdom of natural laws. To command and use ammonia in the best and most economical way, both for permanently improving the farm, and getting large crop dividends, you must have five fields:

FIVE-FIELD SYSTEM.

First, a permanent pasture; one for cotton, one for corn, one for small grain, one at rest. The field that rested last year, put in cotton with 300 or more pounds of the compound, or some guano, per acre. The field that was in cotton last year, plant in corn, manuring with the cottonseed, putting in the middles cowpeas at the proper season for manuring the crop that follows, and it will pay to manure them for this purpose with the compound.

The field that was in corn last year should be sown in small grain, with two hundred pounds or more of my compound per acre.

The field that had small grain last year should rest after harvest up to from the 1st to 20th of July of the next year, then put in peas, with one hundred and twenty-five pounds of my guano. The method of putting in the peas has already been given the reader under the head of "General Treatment of Lands." Should you not have time to plant the peas, let the land rest the balance of the year. This will become the cotton field for the next year, whether sown in peas or not. Where clover succeeds, it can be sown with the small grain, and will gather fertility faster than the spontaneous growth.

Now I will state a different way to prove that ammonia is the cheapest and most expeditious means to renew the fertility of land, and make it productive. In the first place I will refer yoñ to clover. Every person knows the effect that clover has on worn land, in a climate where it will grow. The chief things added to the soil by a clover crop, are carbon and ammonia. In the South, the cow-pea will answer the same end, if sown early, manured with two hundred pounds of Peruvian guano, and turned under from the 1st of July to the 1st of August; then seed again with peas, using one hundred pounds of guano. Feed off with hogs and beef cattle, which will generally pay for all expenses, and leave the land twenty dollars better—the increase in value to be decided by the increased production of the next cotton crop, compared with that of a part of the field that you have left unmanured, and not sown with peas.

If any man will try this experiment on one acre each way, and fails to get his money back next year, in cotton. I will send him the CULTIVATOR during my life. All acknowledge the importance of turning under green crops. The only thing lost by their drying, is their ammonia. I have made money by giving my land one year in four, to gather ammonia and humus.

One of the great objects, aside from the immense profits of using commercial manures is, that it gives you the means of increasing your composts. It gives you increased feed for stock—increases your cottonseed and grasses to be turned under; causes weeds and other things to spring up early in the winter to be turned in the spring without any loss or trouble of using green crops. These weeds protect the land from washing during the heavy winter rains. Land washes much less when fertilizers are used, for the reason that they encourage deeper plowing; make three times the amount of litter to protect the land. One of the benefits of shade on land when at rest is, that there is a less amount of manures becoming soluble, and less leaching of the land during the year of rest. Cottonseed is very valuable as a manure, being easily decomposed, and returning to its natural elements as food for plants. All articles of a vegetable nature, when reduced to their natural elements, are valuable as fertilizers. Manures are not alone valuable for the food they supply to plants, but they render the land more easy to cultivate and assist the crops in standing either wet weather or dry weather. They cause less friction and resistance to the plough or hoe. Manures I consider one of the best economizers of labor that we can use in a hilly, broken or gullied country—vastly preferable to emigrants, because if the production becomes too great you can abandon the use of them for a season.

BARN-YARD MANURES.

Except the droppings on the farm, all stock manures should be raised under shelter, as far as practicable, and with as little labor as possible. It should be taken from where it has been deposited and carried directly to where it is to be used, never permitting it to be thrown into the rain, or exposed to the sun to be burned and become of less value. It should be spread on the ground and applied immediately, so that the decomposition shall

Peavine Hay in Middle Georgia.

take place exactly where it is wanted. In this way the earth will take hold of all the gases and other diffusible substances formed, and retain them for the crop.

In addition to the droppings of the stock, everything that has been of a vegetable character is of value when applied to the land, and I consider it the cheapest and best method to take it where you find it, and carry it to the nearest place where it can be used.

Lime spread over where you have deposited it, will reduce it to plant food by the aid of heat, light and moisture in sufficient time for the crops, which will be a great saving in handling and rehandling it from three to four times, the extra labor being of more value in increasing the amount by hunting waste deposits. In manures, as in everything else, the great consideration is to economize labor. Haul into your lot, and place in your stalls pine-straw, leaves or litter of any kind, sufficient to absorb the ammonia of the stock droppings, and take up the urine, and have as much of this saved under shelter as possible. Once a week sprinkle it with land plaster to help dissolve the matter and retain the ammonia. Do not pile or handle it. Pitch it into the cart and carry it to the field. Make every lick count. Manure loses every time it is turned. Employ your idle labor in gathering up scrapings of manure and deposits from every possible source.

Chapter IV.

ORGANIC AND INORGANIC MANURES.

These are the two recognized and distinct classes of manures, and we desire to consider them respectively, comparing their value as crop growers.

Inorganic manures, such as lime, potash, phosphates, etc., are the basis of all fertility and where they abound in considerable quantities will enable plants to gather and appropriate much more of the organic manures. But plants and seeds are not always made up of specific quantities, any more than a hog is. Take a fat hog, weighing three hundred pounds, and one of the same age very poor, weighing one hundred pounds. Analyze the two, and note the difference in proportion of all the parts, according to the weight of each animal. How various the proportions of bone, nitrogen, carbon, etc.

The same disproportion holds good as to cottonseed, the different plants, wood, etc., as to weight and to the increase when applied to crops.

Farmers, and others not acquainted with chemistry, can ascertain the relative proportion of the organic and inorganic substances by the use of fire. For instance, take ten bushels cottonseed, and reduce them to ashes by fire. Having weighed them before reducing them, weigh the ashes that are left; the amount set free comes from the atmosphere, and constituted the organic elements of the seed—the ashes remaining represents the inorganic elements. To ascertain the respective value of these, as food for crops, is done by applying the ashes of the ten bushels cottonseed just burned to a given quantity of land—noting the increase of crop products; and then applying ten bushels green cottonseed to the same quantity of land—deducting the per cent. made over nothing. This will show what was produced by the organic matter of the ten bushels seed, in contradistinction to what was produced by the inorganic constituent of the same quantity of seed. As already stated, what is true of cottonseed, holds true with other seeds, and all vegetable matter.

My opinion is that one bushel of raw cottonseed is worth for the growth of plants, as much as the ashes of one hundred bushels of burnt seed. This I consider a fair test of the difference in value between the phosphates and alkalies on the one hand, and carbon and ammonia on the other. I had four hundred thousand pounds of cotton and seed burned in one house. The whole residue—as manure—was not worth to me as much as one thousand pounds of seed.

As another instance, illustrating the disproportionate value of organic and inorganic substances as crop-growers: Take the manure of ten horses one year, dropped under cover, and set free of all organic parts by burning thereby wasting the ammonia. Then take the droppings from a like number of horses, dropped in like manner. Use this on twenty acres cotton—use the other on twenty acres the same kind of land—then plant twenty acres without any manure. Cultivate all exactly alike, and the difference in crop products will be a fair test between phosphates and ammonia as a fertilizer. The only discount on this test is the fact that the commercial phosphates are mostly insoluble—the ammonia being always soluble, or will be in due time, which is a great item in favor of ammonia.

With a full supply of nitrogenous and carbonaceous matter, corn and cotton, etc., may be made with much less, in proportion, of potash and bone earth. Take a cord of black-jack wood off a poor pine or black-jack ridge where there is but little organic matter, and set the organic matter free by burning the wood; then take the second cord of black-jack from a rich bottom, where the organic matter abounds in great quantities, and relatively in much greater proportion to the inorganic matter; burn this as you did the first cord. The cord of wood from the poor land, will contain nearly double the quantity of phosphate of lime and potash that exists in the wood from the rich land. All soapmakers have found this true as to potash.

All these experimental facts, taken with our experience with the fertilizing results of turning under clover, peas and other vegetable crops, prove unmistakably that ammonia is the cheapest and most expeditious means of renewing the fertility of land, and making it productive, in comparison with the commercial phosphates, which are so generally insoluble as to prove almost worthless.

Finding from the above experiment that such a large proportion of plants come from the atmosphere, we are taught the reason why we should grow green crops and other crops to be turned into the land, and from every source to let as much atmosphere into the soil as possible; because the more organic matter we have in the soil, the more we can command annually from the atmosphere.

* * * * I am for an annual manure—a soluble manure one that will return the principal, or at least seventy-five per cent. of it, with one hundred and twenty five per cent. profit, or double the investment. I am in favor of an investment that never pleads for time, or complains of usurious interest, or calls for relief or repudiation, but will punctually square up accounts, with one hundred per cent. profit. Such an investment is soluble bones and Peruvian guano. Lend it to your land, in sums of from five to fifteen dollars per acre, at six to nine months' time, and if you do your duty—plough deep and cultivate shallow—the payment will be sure. Your land will be left in better condition; money will be furnished to put back the same amount of manure the next year, and ample divdends made to live on and make other investments. The word "stimulate" is improperly applied to manures. Plants have no nerves for them to act upon. When you see plants growing very rapidly, to which manure has been applied do not think they are drunk. The truth is the manure is soluble and not permanent; and the roots of the plants are absorbing it, and the blades working it up for the crop. I have no use for a permanent manure. If permanent, it is not soluble; if not soluble, it never will enter the roots of the plants, and if it does not enter the roots of the plants, your money is gone. No manure is worth a cent, if permanent. The Atlantic ocean would not be permanent, if its supplies were cut off—if the rain ceased, and all the rivers were stopped. Supposing it level at bottom as well as at top, and one thousand feet deep, still it would dry up in less than two hundred years—a shorter time than some lands in Vir-

Alfalfa in South Carolina.

ginia have been cultivated. So, away with your permanent manures; but be ever vigilant to save all home-made manures possible, of every variety—pine straw and swamp mud included. Manipulate your sandy land with clay, your clay land with vegetable mold. Plough deep, rotate your crops, and rest your lands. Buy liberally of soluble manure, and save twice as much as if you bought none. Is there a single planter who would lend money to be paid in equal installments of twenty years, with low interest? Yet if he uses permanent manures, he can not expect much better luck. Is there one that is unwilling to lend his money at six and nine months, have it under his control all the time, and get prompt payment—receiving seventy-five per cent. of the principal, and one hundred and twenty-five per cent. profit? Give me the manure that will pay promptly, with good dividends! Do not be afraid that it will exhaust your land. Put the cottonseed back, together with the manure from the straw corn, oats and shucks, with the straw used to save the manure and bed the stock; also what the crops got from the atmosphere. I would like to have my land exhausted in that way.

There is only so much corn and cotton in any manure, and the sooner you get it the better. It will pay. The loss will be smaller, and only one year's work required. The same is true of land. There is only material enough in it to make a given quantity of corn or cotton, and the greater quantity you get each year the better. Do not understand me that I am for exhausting land. Not so. Each year put back more than you take from it. Accumulate a large fund in soluble mold and other manure, *and* *never let it be said by posterity, that it is harder for them to live because you lived before them.* Leave your land better than you found it. Improve agriculture, so that a given quantity of labor may produce double what it now does—double the capacity of the land. Then each agriculturist will be able to consume four times as much as he does at present in necessaries and luxuries.

This can be done. During my day the planters in Hancock county have doubled their crops. There were more planters in Hancock county who made ten bales per hand in 1861, than there were who made five bales to the hand in 1845. I repeat, buy Peruvian guano and dissolved bones, and some salt and plaster, where the freight is not too high. Try on a small scale (or large, if you wish)all pure guanos and be governed by the result. For one, I will not touch a manipulated manure.

It creates a middle man, to compete with me in bones, guano, etc. If there is anything to be gained by mixing. I want to make it myself and then I know also that it is pure. I want no manure that will not pay, without the addition to it of Peruvian guano.

Suppose Dr. Pendleton had mixed his Peruvian guano with sand—half and half—it would have paid two hundred and twelve per cent! Good! But four hundred and thirty is better.

* * * * By using two hundred pounds of Peruvian guano per acre annually, you double the relative products of your growing crops, compared with land fresh from the forest, and with crops that have no guano. Therefore, you will get a double proportion from the atmosphere.

It is even possible that enriching the land in Europe, has, to some extent, lessened the fertility of the atmosphere in this country. The richer you make your land, the more you can draw from the atmosphere.

* * * * I do not say this is the only plan, or the best plan; but it is one that will certainly improve your land, and pay good dividends, if you can get reliable labor. You have had my receipt for what I think one of the best manures, except I would add ten pounds of potash, or one bushel of wood ashes. I leave it out for two reasons—the scarcity of potash, and the exhausted financial condition of the country. This article is not designed to underrate superphosphates, but to show that ammonia is the cheapest and best of all manures, and that, judging by experience, it will not exhaust land, but may be the means of enriching it. If it fails, it is the man's fault—not that of ammonia.

You will find some guanos advertised as permanent manures. I want to avoid that kind, for I think it is true of some of them at least, that when I use them, my crops do not remove them. I prefer the kind that will come to see me the first year, and bring a large interest, in the form of cotton, corn, wheat, etc.

The true system in manuring is to get the manure back the first year, with a living profit, and rapidly improve the soil up to its original capacity, and carry it beyond that in the same ratio as the increase. We are only tenants at will, and have no right to use the soil in a way to destroy its capacity to maintain the present population and its future increase. When the people understand the difference in an acre of land that will produce a hundred pounds, and one that will produce five hundred pounds of lint cotton—that this difference exists in the present value of each of these two acres of land, we then will begin to improve our farms.

The great inquiry is, on what kind of land to use the guano and other commercial manures. I say, use it on all lands you plough or cultivate—or everywhere.
* * * * All my practice and teaching has been that the use of manures I recommend gave the farmer the means of making and using double the quantity of home-made manures. I again repeat this, and as well as I can, with demoralized labor, still practice upon it. I not only consider it hurtful to the purse, but sinful to waste manures, or not to use the necessary precautions to save them. My motto is to increase the fertility of the soil in a greater ratio than the population increases. My soil furnishes a portion of the food to raise fish and oysters in the Atlantic ocean, and if I can make a profit and improve my land by using the excrement of birds fed on fish, etc., it is my duty as well as my interest to do so.

It has been truly said that "the true test of a general is success." I say, it is the only test that will do to try the farmer by. Some writers have greatly misrepresented me, in charging that I overlook the great profits of home-made manures. One reason why I use commercial fertilizers is, that I may save double the quantity of home-made manures. I make double the crops, have twice the amount of forage to feed away, and twice as much cotton-seed for manure.* * *

It is true that I made fine crops before I used guano, bones, salt and plaster, but nothing to compare with crops made with them. It is self-sustaining; it is punctual in payments; never repudiates or asks an extension of time; wants no stay-laws or military orders; pays promptly, and on an average as much as one hundred and twenty-five per cent. and at other times as high as four hundred. It enables one to make double the quantity of home-made manures; improves the land; gives the means of keeping more and better stock; improves crops; makes the laborers more cheerful and willing to work; puts money in the hands to do fancy farming; purchases good machinery and tools; will afford some luxuries as well as substantials; enables you to work freedmen, when they would bring you in debt without it. If I could realize all the profits on $12,000 to $20,000 worth of guano, I could do well throwing in the use of land, horse-power, tools, capital to furnish supplies, together with my attention, which alone increases the crop more than one-half. * * *

Guano pays back the purchase-money in cotton lint which is but little loss of matter, and the guano furnishes more than that loss, and leaves a still larger amount in pocket. It enables one to plough twelve inches deep in a thin soil, inasmuch as the guano placed near the roots of plants, gives them vigor to go forth and find the soluble matter that is diffused so thinly through the land; without the use of some concentrated manure, the plant would never have vigor to hunt up the crop food so deeply mixed in the poor land.

* * * * I will tell you something that guano did for me when I could direct labor and be obeyed. I made per hand ten to fourteen bales of cotton, eight hundred to twelve hundred pounds of pork, one mutton, three-

fourths of a fat beef on three hundred pounds, eight to ten colts per year, with corn, wheat, oats, rye, etc. to sell, amounting to $100 per hand; to keep one yoke of fine young oxen for every three hands, to aid in hauling muck, straw, and manure generally; and keep two hundred acres of land under a good fence per hand; six to seven head of cattle, ten to twelve head of hogs, five sheep per hand—all besides being a cotton planter.

Instead of penning my stock to make manures, I let them graze the fields, and induced them to keep away from the swamps, by saving shade trees in the fields, and making straw-pens and shuck-pens, and placing salt about in convenient places. Stock while grazing, drop manure regularly over the field. I contend that this plan gives cheaper manure, more beef and less labor than any other. This plan paid me astounding profits in meat, manure and dollars, and, conjoined with other distinctive features of my plan of farming, has always returned me gratifying results.

* * * * I invite the reader to an aggregate view of my cotton production: Ten thousand persons planting as I do, would produce ten millions of bales of cotton (my crop in 1861 was one thousand bales, last year very little less.) The ten millions of bales at the present price, would give one thousand millions of dollars; one-half of this due to the use of the manure, would place five hundred millions of dollars to its credit; deduct, then, the cost of the manure (one hundred and twenty millions), and it leaves three hundred and eighty millions clear profit, as the land will be benefited to the full

amount of all the labor. I like such drains as that—it gives power and profit.

* * * * In 1861, four thousand planters raising such crops as I did, would have made four millions of bales. Last year, it would have taken but a few over two thousand planters, to have produced a crop equal to that of 1861 (each making as much as I did); so you see the only thing we have to fear, from using guano, and making the most of it, is over-production.

* * * * We can purchase fifty million dollars worth of guano in its raw state, and clear one hundred millions of dollars on it in nine months, and expend nothing additional in manufacturing cotton and grain out of it. I say, do not let any foreigner have your dollars, when you can with certainty make two dollars in nine months, clear of cost, for every dollar spent.

If Dr. Pendleton and others, who seek to show the superior value of phosphates compared with ammonia, are right, what becomes of the green crop manuring? We have been taught to believe that it was the nitrogen added that paid for the time and expense. What also became of the rest system? Dr. Pendleton's comments explode that too; nothing of importance being added, but carbon and nitrogen. What becomes of the British turnip system, or the Northern system of growing hay and grain, to feed stock to accumulate nitrogen with a loss of phosphates, etc., to increase future crops?

Why does the farmer, when he wishes to turn in a green crop, select the plants that contain the most nitrogen, such as clover and peas? It is because practice has proven their value. Take one thousand (1,000) bushels

Pasture in Limestone Country.

of cottonseed, now worth two hundred dollars, to manure with, set the nitrogen and carbon free by fire, and what would you give for the phosphates and other salts left? I do not think they could be sold for ten dollars.

Why is it that the rich lands in Kentucky, as they term it, tire when they are full of all mineral manures? I will give you my opinion. It is, that the excess of lime, and perhaps other minerals, renders all nitrogenous matters soluble. The ammonia is soon given off to the plants, whilst the manure has not been returned.

What is the remedy? Sow it down in that nitrogenous plant, clover, and in two years the exhausted land is restored almost to virgin productiveness. From the earliest days to the present time, practice proves that nitrogen (ammonia) is the great crop grower. To command nitrogen you must have all the necessary salts contained in the various plants. The more minerals, the more nitrogen you command; the more nitrogen you store away in your land, the more you can obtain from the atmosphere.

Fill your land with humus, to stick the sand together, and to darken it. This will prevent its reflecting the heat, and will cause it to receive it gradually, and part with it in the same way. These are some of the good results, in addition to its manurial qualities. With clay land do the same thing, to render it open, and make it ploughable at all times. Plough deep and subsoil. Use all possible manures to be had on the place, and purchase largely of the best manures in the market. Get manures, as perfect plant-growers as can be found; but you must have ammonia and soluble bone.

* * * * I am for the plant that preserves the cap-

ital best, and pays the largest dividends. I have no doubt, that on good cotton land, a fair year, I could make one hundred bales of cotton, with one No. 1 mule; commence operations the first day of December; subsoil every acre; use twenty-five dollars' worth of manure per acre; and finish the 1st of May; cultivate sixty acres.

The use of commercial fertilizers is incorrectly objected to by some. Double the productiveness of the land, and it will be worth four times the present value.

CHAPTER V.

BREAKING LANDS.

The principal object in breaking land is to pulverize the soil, and render it mellow and porous—to make it sufficiently light and spongy to catch and retain the spring rains for the benefit of the summer crop; for, in cases of hot and dry summers, where there is inadequate rainfall, the growth, development and final maturity of the crop must depend upon the supply of rainwater stored away by the soil during the winter and spring rains.

Another object is to mix the soil; to place the surface and richer soil deep under, where it will attract the crop roots to a depth that will protect them from the heat of summer's sun, and where they will find moisture to enliven and invigorate them during the summer drought.

Proper breaking of lands places the surface litter, and all vegetable matter that has accumulated upon the surface, deep under where they rapidly decompose and become soluble plant food. This process, likewise, by turning under this accumulation of litter, removes it out of the way of the cultivator. It prevents the wasting effects of washing rains during the spring and early summer.

The paramount object, however, in all breaking of land, is to so pulverize, mix, deepen and soften the soil as to enable and invite the roots of the planted crops to readily penetrate, traverse and permeate the soil in search of such specific elements of food as these plants need for nourishment and growth. The soil belongs to the planted crops, and should be placed in such favorable physical condition as will render all its fertile elements subservient to these crops. This constitutes the work and real design of the cultivator—to utilize, to the fullest possible extent, the soil and all the adjuvant agencies of nature, for the production of luxuriant and fruitful crops.

Land should be broken from eight to twelve inches. Such as has not been well broken, should be broken every year one or two inches deeper, until you get to the maximum, which I consider to be twelve inches, with six inches beyond as subsoil.

The advantages of deep breaking are, that it protects the land, and enables it to retain moisture sufficient to carry the plant through any ordinary season of drought. I have never known a year, but that, with proper breaking, proper manuring, and surface culture, you could make an average crop. There is no such thing as failure, when man does his duty in the premises. Providence has provided all the necessary means to make a competency. While the land is fresh broke and porous the roots penetrate and occupy the whole of the soil, and come down into the subsoil that is broken. During the cultivation, the rain on the land settles the soil to the roots of the plants, and enables them the more completely to draw all the soluble matter out of the earth. The settling on the roots has been proved valuable in more ways than one. I will only mention the difference in time it takes seed to come up when the earth is pressed closely to them, and when it is scattered loosely over them. They will come up in twenty-five to seventy-five per cent. less time when the earth is packed moderately around them.

There is a great variety of ploughs, all answering nearly the same purpose. The plough that is set so as to screw the land over with the least draft, or to pass it up the inclined plane or mold-board the easiest ,is the best. The principal objection to this kind of plough is its liability to break, and its high cost. I find the cheapest plough I have ever used is a wrought-iron turn-plough of the make of the old "Allen" plough, now called by many people the "Dixon" turn-plough. It should contain from twenty to thirty pounds of iron, according as to whether you wish to use one or two horses, and cut from seven to ten inches as you may wish to use one or two horses.

I would say, where the soil does not reach more than from four to ten inches, I would prefer the common long scooter of four to five inches width to subsoil with, until you obtain a depth of soil of from nine to twelve inches. The reason why I would use the scooter is because it mixes a portion of the soil every year with the subsoil. After a sufficient depth of soil is obtained, I should prefer plows that are known as subsoil lifters. I have no doubt that subsoiling every year would increase the crops more than if you subsoiled once in a rotation. I would prefer to subsoil every year for cotton, because cotton is the best paying crop, and you would feel the extra cost less. I have subsoiled for both corn and small grain with satisfactory results.

Breaking must be commenced in time to do it full and well by planting time. Usually, it should be commenced by the first of December, and not later than the first of January. In this climate, on my farm in Hancock county, it is best, taking ten years together, that the breaking be done not more than ten days before planting time; this, however, we know to be impracticable in many cases. My reasons for late ploughing are based on practical observation. In warm, wet winters, the land is much damaged by washing and leaching, by early breaking, and runs together closer than it would if the ground had not been broken. In cold, dry springs and winters, I have found the early ploughing to do much the best, but from observation I find that we have only about one of them in ten years. If I lived in a cold climate, I would recommend to break early and deep, where the ground freezes from seven to twelve inches or over, where the rains are not so heavy, and a large portion of the time the land is covered with snow. In all climates above 36 degrees, I would give it as my opinion, that land would be materially benefited by fall ploughing, and the further north you go on that line, the more benefit would be received from fall ploughing. The freezes and snows would make up for all the disadvantages that apply to the line south of 33 degrees. I do not consider it a question when to begin breaking land; the point is, you must begin in time to do the work before planting, and take all the advantages and disadvantages that may come; and the better the breaking is done, the easier the land is cultivated, and the larger the crops. *I always consider the preparation the half, and the heaviest half, of making the crop.*

No step in the whole process of agriculture can be considered so absolutely essential to successful crop-growing as proper and thorough preparation of the soil before planting. We need to turn in the surface soil with the vegetable matter. We want a large extent of soil and depth of pulverization, because the roots of plants are many times longer than the limbs and stalks, sometimes going as many as five times or six times the length of the limbs and stalks of corn and cotton. We want a well pulverized soil of sufficient depth to take in from the spring rains a supply of water sufficient to move off the young crops in the spring and carry them safely through eight or ten weeks of drought. To this end, you must have a soil of twelve inches and subsoil six inches beyond.

Now as to the method of procedure: Have good turning plows, and, according to your ability, use one or two horses, and subsoil behind. Ride over the field or plat, and lay off the land so that the teams will go round on a level, and the dirt fall down hill. A team will break the soil nine inches deep in this way as easily as they could seven inches on a level piece of land. Continue this round until the field is finished—one team following another—all the time going round the circle. If you subsoil have one team follow each turning plow—running in the bottom of the furrow. Finish in the middle of the field or cut. In this way no water furrows are left to be washed out into gullies, and the general surface of the field is left uniformly smooth.

If you wish a fort to stand a hot and protracted attack, you must water and provision, as well as man it, in order that it may hold out until the siege is raised—remembering one day unprovided for may prove fatal; so if you wish a cotton plant or a corn-stalk to stand a hot burning sun, and a dry northwest wind, from four to ten weeks, and come out safely, you must water and put

RYE THAT MADE 25 TONS GREEN FEED PER ACRE—4 CUTTINGS.

in sufficient soluble food to last. How is that to be done? By deepening the soil, ploughing deep, subsoiling, and filling it with humus, that it may retain the greatest amount of water. The soil is like a sponge, if too porous, water will sink through it; if too close, it will hold but little. I find that humus, clay, and a due proportion of sand, constitutes the best soil to succeed under all circumstances, with soluble plant food in abundance.

An over estimate as to the practical importance of deep and thorough breaking of lands for the cultivated crops can not be made. It is an absolute necessity, one of the indispensables in all successful farming. A grain of corn, or seed of cotton inserted into a soil of half an inch of depth will readily germinate and sprout up under the inspiration of vegetable instinct; but for want of depth of soil, these plants soon wilt, and perish away fruitless. To produce prolific crops, or even to reproduce their kind, they must have, not only fertile, but deep soil. Hence, we emphasize what we know from long practice and hard-earned experience. Plow deep; turn your land under from eight to twelve inches, submerging the surface soil, with all the litter and vegetable matter deep under. Plow deep, for the purpose of well and throughly pulverizing the soil and making it loose, permeable and tillable. Plow deep, and subsoil, to give your crop roots depth of range, and capacity of reservoir that will secure them sufficiency of moisture for any emergency of drought. Deepen your subsoiling to that extent that will furnish safety in any possible or probable peradventure, up to a ten weeks' drouth—(see article on the "Cultivation of Cotton" on that point).

The reader will permit me to recur to a point of importance connected with the subject of turning lands, which was omitted in its proper place. I allude to the popular impression, entertained by many, that it will not do to turn the clay subsoil to the surface, for the reason it will injure the land, and prevents the crops from growing off promptly. Now this is all myth; one inch of clay, each year, over a good soil, will do no harm in any land. The clay turned to the surface will, by operation of the chemical elements of the atmosphere become vitalized, and so changed chemically as to assume the properties of the fertile soil. Many a red-clay fortification in Georgia, during the late war, has demonstrated this fact, by producing on the very height of the embankment the most luxuriant weeds. Hence the exposure of the clay to the atmosphere transforms it into a fertile soil, and thus, to that extent, deepens the soil, and at the same time shields the tender roots of the planted crops from the hot suns of early summer, and until the cultivator comes along to break the crust, and let in the air, light and heat. So, turning a stratum of subsoil clay to the surface not only does not injure the land, but contributes to deepening the soil by vitalizing its organic elements, and making them productive.

I take the ground that if my system be carried out as a whole, there is no use to break the ground but once a year. It requires till the first of May to do it right, and that is soon enough to finish. Then the sweep instead of the bull-tongue for cultivation. If you depend upon the latter you will loose two-thirds of your crop.

An important precaution in breaking lands is, never plow when the land is wet. Let it sufficiently dry after each rain to crumble and disintegrate when raised by the plow. The soil should never be plowed when it so wet as for the particles to adhere or stick together in lumps. When thus ploughed wet, the soil dries off hard and crusty, and to a certain extent, loses its assimilable character, and hence is injured to that extent; clay soils are greatly damaged by being plowed when wet. It must always be remembered that the principal object in breaking lands is pulverization.

There is no necessity for breaking lands a second time during the season, or for the same crop, if it has been well done, and sufficient carbon and vegetable mold incorporated into the soil. Lands that have thus been prepared by breaking, and planted in crops, become the domain, the private territory, of these crops, and should not again be invaded by the plowshare, but left to the tender care of the surface cultivator.

CHAPTER VI.

CULTIVATION OF CROPS.

The main objects of cultivating crops are, to keep the weeds and grass from drawing the substance from the plants, and to keep the surface broken so as to let in light, heat and air. If a small amount of loose earth is on top, it prevents the surface from heating too rapidly by day, and acts as a blanket to keep the earth from discharging the heat too rapidly at night. This small fine pulverization on top, say from a half to an inch, comes to the dew point much earlier than a solid body, and absorbs moisture and the elements of the atmosphere much earlier in the night and more rapidly. It retains the elements of the atmosphere to be washed deeper down when it rains, and protects any further evaporation below the moisture until that is discharged.

I consider it just as deleterious to cut the roots of a plant as I would to cut the veins of an ox when I have him fattening. The object of the roots is to penetrate in every direction the surface and the depth below, to gather the food and send it up to the blades to be elaborated by them into food for the stalks and the grain. If the roots are cut off, the whole supply of nutriment is cut off; if enough roots are left in deep ploughing to prevent the plant from dying straight out it may be recuperated for awhile, but it would have the same effect as putting an ox on half feed when he is fattening.

Vegetable mould opens the particles of clay, and so mellows the soil that the roots of the plant may easily penetrate; and it so closes the particles of sand as to enable the soil to retain moisture. Hence there is no positive necessity of breaking such land a second time during the same crop-season. To break the surface crust occasionally, to destroy the grass and weeds, and admit the atmospheric gases, light and heat, is the object of crop culture. Hence, my practice of surface culture.

The practice of root cutting is so absurb, and so violate of the evident design of nature, that I have in all my farming avoided the use of plows that cut deep enough to reach the roots of plants that I am cultivating. These roots are put forth in accordance with the laws of vegetable life, to collect and appropriate nutriment to the growing crops. These roots and fibrils permeate the soil in every direction, and to the utmost depths of the broken soil, and traversing entirely across the rows, instinctively seek the richer spots of soil. To cut these roots is simply doing violence to nature's laws and seriously frustrating her designs.

In my practice of surface-culture, I use a broad, shallow-cutting sweep, that simply breaks the crust, and running not deeper than from half an inch to one inch. The following is a description of, and directions for making and using this cultivator:

THE DICKSON SWEEP.

The stem should be of iron, three inches wide and three-fourths of an inch thick. It should be cut square off of a bar, fourteen or fifteen and a half inches long, leaving five and a half inches stem above the wing to come on the foot of the plough. The balance of the stem is to put the wing on, and to form the point. The use of the point is, that you can hold the sweep much more steadily, and it acts as a rudder to keep every little bunch of grass or twig from throwing it out of its position. I find the most valuable size to be from twenty-two to twenty-six inches, never less or more. The wings should be cut out of the best Swedes iron, just half the length of the width of the sweep. The width of the iron in the wings should be three and a half inches by one-half inch, and they should be cut diagonally across the iron, varying about one inch from the true line, and when the wings are put on, the end of the wings should lack very little of being in a straight line with the upper end of the stem. If put square on, they would not discharge the dirt, on account of too great a slope, and they would dodge for every little resistance, instead of cutting it. The sweep should be put on the stock so that when power is applied on the end of the beam it would not be inclined to go in or come out of the ground. They should always be kept sharp, if the smith has to work on them once a day. They will usually last from three to ten days without sharpening.

In contra-distinction to this strictly surface-culture, the popular practice of deep plowing with rooters or turn-plows—thus rebreaking the land at every plowing of the crop, is practically absurd, and acts as a stunning blow to every crop thus treated.

Whilst, in the preparation of the land for planting, the plowing should be—in all eighteen inches, the cultivation should not be deeper than above stated; but the farmer who prepares his land by breaking it eighteen inches deep, and cultivates six inches, deep, will injure his crops less than the farmer who prepares six inches deep and cultivates six inches deep. In the one case—the roots having twelve inches of prepared land to occupy, and in the other, no space at all not interrupted by the root-cutter.

Nature is exact, and puts forth no superfluous roots to growing plants! Hence every root should be spared.

It is astonishing how quickly and rapidly the roots of a young plant will spring out, and traverse a mellow soil, and how speedily the tap-root will reach the hard subsoil beneath, and end its quest in that direction. Hence every plowing in cultivation that is deeper than one inch must destroy more or less of the plant roots; but under my system of preparing, planting and cultivating, as a general remark, I cut no roots. Soils planted in crops belong to these crops, and the cultivator has no right to invade it with his plowshare during the growth and development of these crops. To best promote the processes of nature in maturing these crops, he has only to break the surface crust occasionally to destroy extraneous growths and admit the light and atmospheric gases to the under soil. This is sufficiently effected by the surface culture proposed, and by the Dickson Sweep above described. The true philosophy of crop cultivation requires nothing more. To violate this principle and practice is to damage the crops.

Furthermore, it is great economy of time and labor to sweep your crops with a twenty-two inch sweep instead of breaking again, every three weeks with a bull-tongue three or four inches wide. Cultivation with such an implement makes dividends impossible. There is no use for the second breaking with bull-tongue or rooters to make the most out of land or labor. The sweep will give you larger dividends because you can cultivate a much larger area, and do it upon more conservative principles.

It is not only important that the plowing of crops should be done shallow, so that the roots of the plants may escape cutting, but the same care and tenderness should be observed in the hoeing of crops. The term "chopping cotton" should be expunged from the farmer's vocabulary. Cotton should be thinned by shaving out across the drill and not dug out by "chopping." Let the hoe pass level through the drill, and just deep enough to shave off the cotton and grass, barely breaking the surface crust, and finish the thinning with the hand, if necessary. The ridge or bed should not be rudely chopped down leaving the tender roots of the cotton bare, or in a crippled or falling condition. To break up its attachments to the soil, leave it in a tottering condition, or cut off its tap-roots just under the crust soil, is positively hurtful to the plants. It cripples and stunts them, and they often perish. I repeat, shave lightly and do not dig about your plants.

The same is true of other crops. Digging about corn, to hill it, is often hurtful. Deep ploughing, or digging about, forking or spading crops in the cultivation, is all wrong.

CHAPTER VII.

CULTIVATION OF CORN.

PREPARATION OF THE LAND.

If you cover deep you lose all the advantages of deep planting (but not deep breaking); and for this reason—corn, in good weather, will come up from a depth of one to six inches, but will strike out roots about one inch from the surface of the ground, and all below that will perish. That is one reason why I am opposed to dirting corn as it comes up. It brings the roots of the stalk to the top of the ground.

If any hills should be missing, it should be immediately replanted as soon as the corn comes up, and it will be just as forward as the other corn. If more than one grain be dropped, just as soon as the stalks have three blades they should be thinned to one—never having more than one stalk in a hill.

CULTIVATION.

It is not necessary to commence working corn before the 20th of April to the 1st of May. One reason for this is that earlier working is a loss of time, and if the corn plant is hilled up before there are lateral roots to it, the plant roots all below an inch or inch and a half will perish, thereby losing all the advantages of putting the corn in deep, but no loss from the deep preparation. My plan is to finish working from the 20th of April to the 25th of May. With the land well turned very little grass and weeds will come up, except in the bottom of the furrow, which will be easily managed.

FIRST WORKING.

I would side with a twenty-two inch sweep, the back of the right wing elevated about one inch and a quarter, so as to sift in dirt to make it about an inch of being on a level with the common surface. The middle can be broken with the same size sweep, the back of both wings elevated, finishing out the seven feet with four furrows. A horse should plough three and a half acres a day, and four hands completing fourteen acres every day, by going sixteen miles a day.

SECOND PLOUGHING.

This work, if well done, will stand from three to four weeks. It should be ploughed just as at first, with the right wing of the sweep a little more elevated, running very close to the corn—leaving a perfectly level surface, and finishing out the middle with three furrows. Add a fifth furrow for making a good place for planting peas. Fives horses should plough fourteen acres a day. If the plowing be well done there is no use for a hoe.

PLANTING PEAS.

From the 1st to the 20th of June is the time to plant peas. This should be between the second and third

The Old Ideal of Corn: Much Stalk, Little Ear.

ploughing—running a shovel furrow in the middle of the corn rows. One hand can drop for one plough. Drop six or seven peas a distance of not over two feet—covering with a harrow. Two hands and one dropper will plant sixteen acres per day. If the farmer can spare the time and means, it will pay to guano his peas.

THIRD PLOUGHING.

This is to be the last and final ploughing. It should not exceed half an inch in depth. Side the corn with a twenty-two inch sweep, the right wing elevated, and the left wing one-half elevated. Side the peas with a twenty-six inch sweep, the right wing half elevated, the left wing elevated, going a half-inch deep. If this be well done, it leaves a beautiful inch of surface—not a bunch of grass in the pea or corn row. No hoe hands are ever needed in the cultivation if the plough hand does his duty. Should the hand who sides the corn leave a bunch of grass, he should get it with his hand or foot. This will make him more careful to do the work right; and he can go his sixteen and two-thirds miles a day, take care of his horse, and do everything that is necessary to be done.

This is the last ploughing; if well done, the ground will be almost as smooth and level as a floor, with not a sprig of grass to the two hundred acres, nor a weed to be seen in the field. In old times, I required every hand to clean the crop as he went—what the plough left, to be removed with the foot and hand. From thirteen to sixteen miles, according to the condition of the crop, was a day's work.

Such pine land as mine (some of it very poor) should make from twenty to twenty-five bushels per acre; and wet or dry, if the work is rightly done, there is no such thing as a failure.

All the labor required to cultivate corn is less than one day per acre; requiring only thirteen days to cultivate fourteen acres; and if well done, it will get the largest crop out of the land that is possible to get any one year. To plant the pea crop costs only one-eighth of a day per acre in the ploughing, and one-sixteenth of a day's work per acre to drop it. This will make the corn and pea crop, after the land has been prepared, require only one day's work per acre.

The reader will note in the above account of my plan of corn culture—a practical solution of the proposition—"do not cut the roots of growing crops."

In the first ploughing, the sweep did not reach within several inches of the surface roots of the corn. Hence, not a root was touched. In the second ploughing, the sweep is to run not exceeding one inch deep. This one inch will not reach even the surface around the corn, and its roots being below, can not be reached by a ploughing running one inch deep—so, the roots have escaped the two first ploughings. The third and last ploughing goes only half an inch deep and hence misses the plant roots again and not a root has been cut during the entire cultivation of the crop.

Clay lands will bear the same treatment as sandy lands with the same result and with less difficulty. If you have two hogs fattening, one white, representing sandy land, the other red, representing red land, and you cut the veins and let out the blood every two or three weeks the result would be the same—just so cutting the roots of corn every two or three weeks, on red or sandy land, would involve the same loss. I do not care what color your land is, or whether sand or clay, if you keep up a full supply of vegetable mold, break deep before planting, and cultivate lightly afterwards, the same results will be good, wet or dry.

This method of deep planting and shallow covering forces the plants to take root deeply—at the bottom of the mellow soil, which retains moisture for a long time without additional rains; and, hence, I say that I can make an average crop of corn with one or two rains after it comes up. The ample distance I give corn, likewise helps to economize the water supply and keep the crops green and growing during drought.

The most palpable sources of failure in the production of the corn crop are four-fold:

1st. Not keeping a sufficient quantity of vegetable mold in the land.

2nd. Ploughing too shallow in preparing for the crop

3rd. Planting too thick.

4th. Cultivating too deep.

With slave labor before the war, my last crop was as follows: On one thousand acres of thin pine land, eighteen bushels of corn per acre was the lowest average. The highest average I ever made on this land was twenty-six bushels and one peck per acre. The lowest acre produced twelve bushels, and the highest thirty-eight bushels on upland, with two thousand stalks per acre. It was easy to find ears of corn that weighed twenty ounces.

PULLING BLADES.

There is great diversity of opinion as to the pulling of fodder. I have found by practice, that if the "Compound" is used, especially salt and plaster, the corn will be fully matured before the fodder begins to damage, and it will be much heavier than if it was not used, and there will be no loss of corn whatever from pulling the blades. There is no food that stock likes better than well-matured fodder, nicely cured. Those who have a different opinion, and have made a test of the corn, have always pulled the fodder too soon. The object is, first, to cultivate corn for the sake of the corn; and when the corn has made all it can make, there can be no objection to saving the fodder.

With deep preparation, liberal manuring, and the ground kept clean by shaving off the grass with the sweep, the corn will be made and hard, while the fodder is still green and good. Then the fodder may be pulled off without hurting the corn in the least. Fodder may be kept green on the stalk two or three weeks after the corn is hard, by using salt and plaster around the hill as a manure. There is no better food for stock than fodder well saved.

PRESERVING CORN.

Having been often called upon to answer the question, how to preserve corn, and not having had time to answer such letters, I will give my practice. No other corn can be kept long but sound, pure corn. Use the yellow flint variety for long keeping. That corn you wish to keep the longest, let it thoroughly cure in the field, pull it when it is thoroughly dry, from the middle of November to the middle of December, put into a dark house, fill it full. This corn will stay till you use it. I should have mentioned that I always put it up in shuck, put it in as close as possible; and if a rat-proof house is used, so much the better.

TIME FOR PLANTING.

In deciding this question, you must be governed by the season and the weather. From the 10th of March to the 1st of April, corn planting may be commenced. A mild and favorable winter, with flattering indications of opening spring, will invite you to commence your planting as early as the 10th of March. But should the spring be a little late, the ground still cold and the weather unfavorable, you may safely and with better policy, defer planting till the middle, 20th, or even to the last of March. These instructions apply to sections on or near the 33d degree north latitude. Of course, further south corn can be planted earlier; and further north much later. Accordingly to my experience, the farmer only gains hard work and more of it, by very early planting.

In the Southern and Middle States, the corn-growing season is abundantly long to allow the planter to select his planting time. Corn is an annual, and under proper system of culture makes and matures its crop speedily. Planted while the ground is still cold, it does not spring up and grow off promptly; but the plant, loitering for want of warm sun and soil, becomes puny and more or less stunted in its growth, and can never make such a luxuriant crop as when it grows off promptly. There is no sense in planting a summer crop in the winter. As a single crop, to make the heaviest yield, I would plant in April, but only advise the earlier planting to conform its culture to the combined schedule of corn and cotton together. The best crop I ever made was planted about the first of May.

DISTANCE.

The first thing is to settle the capacity of your land to produce corn, as to the number of bushels in an ordinary year, and never exceed one hundred and thirty-three stalks to the bushel. Seventy-five stalks can be made to yield a bushel, and I have made a bushel off of fifty stalks the field over. Taking land that will make from ten to thirty bushels of corn to the acre, I would have rows seven feet apart, and drop the grains three feet distant in the distance given above, there will be twenty-one square feet for each stalk of corn. If there should be enough soluble matter in that space for two or even three ears, one stalk will take it up; but if there is only matter enough for one ear of corn, and you put two stalks, and water is scarce at earing time, you will miss gathering—even that one ear. Again, if it be a dry year, thin planting will always beat; and corn always commands a better price such years.

The higher the latitude where corn will ripen before frost the thicker it may be planted, and the more it will make per acre—other things being equal. But I contend that two thousand stalks are enough for one acre in the latitude of Middle Georgia. Under no circumstances would I advise more than one hundred and thirty-three stalks to the bushel of corn the land ought to make per acre. I have made one bushel of corn for every fifty-two stalks in the field. In planting richer lands, that would bear say three thousand stalks or more per acre, I would lay the rows six feet one way and regulate the distance in the drill, so as to give the number of stalks desired.

The most universal, fatal error in raising corn is, planting it too thick! Give it distance, and seek to make ear not stalk—grain instead of fodder.

PLANTING.

Lay off your rows with a long shovel plow, on a level, seven feet apart. Commence at the opposite end with a longer shovel, and open out the same furrow. The reason for running this second furrow in the opposite direction is, you get up to the trees and stumps, and make a better finish at the end.

Whether you use compost, cottonseed, guano or my compound, let each hand have a three-foot measure, and by it deposit the manure in the bottom of the furrow just three feet apart. Then drop the corn within three or four inches from the manure—one or more grains in the hill—dropping on the near side of the manure as the dropper goes. With a very light harrow, cover the corn one or one and a half inches deep. The harrow should go the same way the dropper goes to keep from pulling the manure on the grain, and thus destroying its germinating powers.

The corn is now in the ground eight inches deep, and covered from one to one and a half inches. It will germinate and quickly come up, and send out not only its tap-root to the depth of broken soil, but lateral roots in every direction seven inches below the common surface.

Chapter VIII.

CULTIVATION OF COTTON.

Distance of Rows.

As in my plan of preparing land for corn and laying off the rows, the question of distance occurs. My early impressions, dictated by reason and knowledge of the natural history of the cotton plant, its nature, habits, etc., decided me to give the crop good distance in the row, to allow room for proper cultivation, and free access of air and sunlight to this sun-plant.

I prefer to have my rows wide apart, and leave the plants thick in the drill, for this reason: All land has its capacity, with or without manure, but greater in proportion to manuring and deep preparation, to sustain a certain number of plants. The cotton plants, when still small, commence to take on and mature bolls, and continue until they exhaust the soluble matter, or reach the full capacity of the land. Two stalks will do that much sooner than one, and will so avoid late droughts, caterpillar, boll-worm and early frosts. For all good, medium and thin grades of lands I find that four feet is near enough to have the rows; richer lands require more distance.

In very rich land the distance between the rows may be from four to six feet; probably some of the Mississippi bottoms may want eight feet. No land is so poor that the rows of cotton should be nearer than four feet. If you

Cotton Should Have Room—and Material—to Make a Large Weed.

have not land enough to plant as much as you wish, purchase more. A four-foot row will make more than a three-foot row; it is just as easy cultivated, if the season is favorable, and more easy if they are not.

PREPARATION.

With large shovel plough lay off your rows four feet apart, running them as near on a level as possible. Run a second furrow with same size but longer shovel, in the bottom of the same row, opening it well out and to the depth of seven or eight inches. In this furrow deposit the fertilizer intended to be used, with the hand or fertilizer sower, at the rate of from four hundred to a thousand pounds per acre. With a long scooter plough, run deeply on each side of this row, covering the manure and leaving a small, sharp ridge in the center. Run the same plough deeply in these furrows a second time, or, a good subsoil plough, if preferred. Now, with a good turn-plough, run on the side of each of these scooter furrows, and scooter furrows in each of these turn-plough furrows. Split out the remaining middle with a large shovel as deep as the team will pull it. That finishes the bed. Continue this process the field over; nine furrows finishing each row. It will leave a broad, flat bed, just over the middle of which the seed are to be planted.

I will now give you a plan that will carry the cotton plant through eight or ten weeks of drought with safety, and enable it to get ahead of the caterpillar—the boll-worm may come too soon for a full crop—but one need not fear the caterpillar, if they do not come before the first of September. Always remember the soil must be good and deep and subsoiled six inches deeper, and furnished with a good supply of guano, dissolved bones, plaster and salt. A cotton plant to stand two weeks must have four inches of soil and six inches subsoil; three weeks, six inches soil, same subsoiling; four weeks, eight inches, same subsoiling; and for every week of dry weather, you will need an additional inch, with the same six inches subsoil, broken below. So, you will see, to stand a ten weeks' drought you must have a soil sixteen inches deep, with six inches broken below.

This plan will hold the forms and bolls during the whole time, and not give them up when it rains; but should you not prepare right, and your supplies give out, or surrender one week before reinforcements come, in form of water, much is lost, and it may be too late to start anew. If you prepare and carry out this plan well, you may expect from four hundred to twelve hundred pounds of lint cotton per acre, according to the character of the land, locality, etc.

TIME FOR PLANTING.

From the 10th to the 25th of April, I consider the best time for planting cotton in this latitude. But, in round numbers, any time from the first of April to the 15th of May will do to plant cotton. You may plant with high manuring as late even as the first of June. By extending your planting over the longest periods, you can raise the largest crops, the bulk being put in about the 15th or 20th of April. The earlier cotton is planted the lighter it must be covered.

PLANTING.

When the proper time arrives, and the land is ready, open with a short bull-tongue, sow the seed with hand, and cover with a light harrow. But a cotton planter is preferable. When this is used it finishes the whole operation at once—opening, dropping and covering the seed.

FIRST WORKING.

In the first working of the cotton, side with a twenty-two inch sweep—with the right wing tolerably flat, going very close to the plant, and not exceeding a half inch in depth in the plowing. Let the sweep be sharp.

In ten days, commence hoeing with a sharp, No. 2 Scovill hoe, scraping through the drill very lightly, and leaving from two to three stalks in the hill, the width of the hoe. I prefer two stalks in a hill. Leave no grass to bunch and cause a future bad stand. In many instances, it is best, when half over the first time to turn back and clean what has been hoed. The shaving of the grass with the hoe will act as a second working of the crop. It will always be safe, if you can, to return to the cotton once in three weeks.

Do not chop out cotton but shave it out with the hoe. You must not dig down about its roots, but scrape it off, not tearing up the soil around it and exposing its roots to the sun.

SECOND WORKING.

At the end of about three weeks, side your cotton again with the same twenty-two-inch sweep, the right wing a little up, running close to the row, and shallow. Cotton ought to be ploughed about every three weeks. If the work be well done, it will, in most cases, stand four weeks. By this plan the cotton will be kept clean, and get the advantage of frequent stirring, which should be surface stirring. Continue ploughing till the 15th to 20th of August, not more than one-eighth to one-quarter inch deep, and in the same manner, and with the same sweep as for first and second ploughing. Once or twice during the season run out the middle with one furrow to keep the land level.

Cotton may be made with two to three ploughings. Four sidings and two middle splittings are all that it ever wants under the most favorable circumstances. The greatest amount of work the cotton requires is only ten furrows to the row for all cultivation. The whole ploughing occupies just one and a fourth day's work per acre, under favorable circumstances; and it may be completed with three-fourth days' work per acre. It is essential that each of those ploughings should be done very shallow and close, never stopping for dry weather. If the ground stays wet, you may stop a few hours and hoe. The hoeing and ploughing during the cultivation of the crop closes up the land sufficiently to cause the fruit to set finely. At the beginning of the planting it was sufficiently porous for the roots to penetrate in every direction, and to any desired depth. The cotton plant is like the cultivated plum or cherry, requiring the land to be pretty close around the roots to set its fruit well, and prevent its drowning in excessive rains. To cause early maturity the rows of the cotton should be one way four feet apart, and there should be from two to three stalks in a hill, at the distance of every nine inches. When the cotton fruit commences to bloom, each stalk will bloom and take on just as many bolls as if there were only three stalks to the yard. This system, stated above, will insure eight stalks to the yard, if hoed with care, which is one hundred and sixty-six per cent. more stalks than if one stalk is left for every twelve inches. By placing the stalks thick in the drill, and wide apart, the land is less shaded, and gets more light and sun. If you wish to shade with a given number of plants, the more equally the land is divided the more completely it is shaded.

Prepared, manured, planted and cultivated, as directed, there never has been any reason, any year, to prevent you from having a good average crop. The driest year I have ever known has satisfied me of this fact. If you pursue the above plan, and get three favorable weeks from the 20th of July, you will get a good average crop. Thin planting, as a general thing, latens the crop. If seasons have been regular, and the above directions have been carried out, the plant will be completely checked by the 20th of August, and need no topping. Topping is advantageous where we find the bolls have not come on soon enough, and, if topped, should be done from the 5th to the 10th of August.

The heavier the cotton bolls the more care is necessary, by previous preparation and manuring, to sustain the plant. Care should also be taken not to skin or bruise the shanks of the cotton with the hoe. The hoe should never be raised more than eight inches from the ground to hoe cotton. The hoe should be kept sharp and grass should be cut just below the crown. Scratch out the word chop, and use the word hoe or scrape. This matures cotton earlier, and renders it less likely to be damaged by boll-worms and caterpillars.

RUST IN COTTON.

Rust is simply poverty of the land. This poverty is produced from various causes, such as wet lands that leach, lands that are too porous to hold water, that receive too much rain at one time and get too dry at another, and letting it get grassy so as to rob the plant of what little nourishment is there. The hilly, sandy lands can be improved by mixing with them a vegetable mold, and using a sufficient quantity of "Dickson's Compound" with surface culture. The wet lands have to be drained to increase their fertility. Red and post-oak lands that are sufficiently dry need nothing but enriching; and the true system for everybody is, to make the land as near virgin soil as possible. I have never known in this section new lands to rust. The black prairie lands I am not acquainted with, but I understand they are liable to rust; but I believe the same system of keeping them full of vegetable mold up to the virgin standard, and the use of the "Compound" manure, would succeed in making cotton in them. The sulphuric acid that is in the plaster might to some extent supply the place of carbonic acid that is deficient by long cultivation. The above is true in my practice. As to the black prairie land, it is a mere suggestion, but I believe that it will succeed.

PICKING COTTON.

Picking should commence as early as the cotton commences opening, and the cotton should always be sunned when picked before the seed matures or hardens. If the crop appears to be large, it will have to be picked by the hands. Hurry them up; admit a little trash to increase the quantity picked. The falling off in price by picking a little trash, is not so disastrous as to let the cotton stay and waste, and turn black for the sake of picking it clean.

No system can prosper without teaching all the operatives and laborers to be experts, whether agricultural, or manufacturing, or anything that is done requiring labor. The first thing to do, in regard to any of the operations of labor, is to teach the laborers how to do it; the next thing, to do it with more ease and efficiency, and to learn to do better and better work every day. For instance, take a boll of cotton. They must be taught, with the greatest speed, how to throw the hand into the boll, and to pull out all of the cotton with one lick, not waiting to see whether any was left in the boll or not, always having in mind to strike but one lick at a boll, and as soon as that is done to strike at another boll. I have, in five minutes, taught a hand to pick one hundred pounds more of cotton per day than he had picked on the previous day, and from that point he will continue to improve. The greatest efficiency I have obtained in hands picking cotton was seven hundred pounds—equal to three good bales a week.

SELECTION OF COTTONSEED.

To raise cotton for seed, the best bolling plants should be selected that is on the plantation. Manure it well, and cultivate as directed above. Plant in it the most select seed on hand, and in working the cotton you should always

SELECTING COTTON SEED.

pull up the stalks that prove unprolific, even if it makes a vacuum. When matured, from the second and third pickings, select the best stalks, those that have limbs sufficiently well to contain from six to seven bolls from a half inch to an inch apart. The best known variety to commence with is the "Dickson Select," this variety having outlived every other in productiveness and popularity.

The cotton for seed should be picked when dry, and put up when dry. This will always insure a healthy plant. If the seed is partially damaged, the plant will continue to die out for weeks after it comes up, and sometimes fail even to make its appearance after sprouting.

I would select cotton for seed every year. Select enough every year to plant to make seed to plant the entire crop the succeeding year.

There is a belt of land running through Georgia and other Cotton States, that I consider the home of the cotton plant—possibly the bottoms in the West may be better adapted to it. The southern line commences in Georgia above Augusta, and ends just above Columbus, embracing the Southern granitic region—mulatto, pine, and oak and hickory lands, and extending about one degree north. I prefer the southern part of this belt. The north end of my farm is included in this southern part. Planters living south of this line would do well to obtain seed from this region once in three or four years. South of this belt, the cotton plant is inclined to produce too much weed and too little fruit. In it, with proper preparation, rotation, manure and rest, you can make the cotton plant just what you please, as gentlemen from all parts of Georgia can testify, who have seen my crop—making two bales per acre on cotton from twenty-six to twenty-eight inches high.

To improve the cotton plant, you should select seed every year, immediately after the first picking, up to the middle of October, selecting (in the case of Dickson seed) from stalks that send out one or more suckers near the ground, sometimes called arms. These arms need not be looked for on poor land. Secondly, from those that send out limbs thick with three to six bolls, from a half-inch to one and a half-inch apart on the limbs. If you do not keep your land well charged with humus, the cotton limbs will be too short; if you cut the cotton roots, you will make stalks instead of bolls. On all farms there are some acres that produce cotton better than others, and seed for planting should always be selected from these spots.

Thinking it best to tell what I have done, instead of giving advice that I do not follow, I will give you the details of the preparation, manuring, planting, cultivation and production of a sixteen-acre lot, planted in cotton; and as many may desire to know all the particulars, I will be as explicit as I can be in a letter.

First, the land is good pine land, and has been under the plough nearly seventy years, and as many as fifty-five years in cotton. About twelve years ago, it was sown in oats, with two hundred pounds of guano and bones mixed with salt and plaster, and made thirty or thirty-five bushels per acre—all fed off by turning stock in the field. Four years ago, I left it uncultivated until the middle of July; there was then a heavy growth of weeds on it, just grown. I turned them in, and dropped peas in every third furrow. The result was a large crop of vines, and at least fifteen bushels of peas per acre. These were fed off by beef cattle.

That, if you call it rest, is all the field ever had. The lot lies between two branches, running north and south; on one slope, next to the branch, is a second growth of pines; the other is a peach orchard. The cotton was planted on the top of a level ridge, lying within one-fourth to one-half of a mile of Little Ogeechee. It had been planted in cotton in 1866—manured with about one hundred and fifty pounds of bones and Peruvian guano each, and one hundred pounds of plaster. I commenced third of May, with two horses, to prepare the land; cotton rows four feet apart; ran two furrows in the middle of each row, which stood open about eight-inches deep, and applied to each acre two hundred and fifty pounds soluble bones, one hundred and sixty-five pounds No. 1 Peruvian guano, and one hundred pounds of plaster. Salt being too high, I omitted that. The mixture was deposited in the bottom of the furrow; then covered with a long scooter plough, going about as deep as the other two furrows; then covered with a long scooter plough, going about as deep on the side of each scooter furrow, with a good turning-plough, going seven inches deep. After preparing about six acres in this way, I opened with a small bull-tongued plough; dropped the seed and covered lightly with a board, part of it with a harrow. I continued in this way until the lot was planted, finishing the 15th of May. The land being freshly prepared, and a little dry, it did not come up well. The 25th of May, had a fine shower, and on the first morning of June I turned the ploughs back to finish the preparation, running a scooter, twelve inches long, in the bottom of each turn-plough furrow, going seven inches deeper; then ploughed up the old stalks with a large, long shovel plough, going under the the old cotton stalks—making nine furrows to the row in preparing the land, taking nine days, with one horse, for every eight acres, which was equal to a full subsoiling. You observe that the preparation was not expensive. Including planting, it was eleven days' work to eight acres.

The cotton soon stretched up well. The first ploughing was done with a heavy twenty-two inch sweep (right wing towards the end nearly flat, the back edge of the wing about one and a fourth of an inch above the front edge in elevation). I then hoed out to a stand, the width of a No. 2 Scovill hoe, leaving one to three stalks in a bill. Cotton standing thick in the drill will be more forward than that which is thin. Give it the necessary distance between the rows.

The second ploughing was done with the same kind of sweep, with both wings elevated. The second and last hoeing followed in a few days. The third ploughing ran one furrow in the middle of the rows. The cultivation with the plough occupied one horse five days for each eight acres, which makes two days ploughing for each acre, and about two days hoeing for the same.

The cotton grew so rapidly, it did not need any more work. I hired the picking of most of it, at forty cents per hundred pounds. The lot averaged about three thousand (3,000) pounds per acre, but owing to a storm and other causes, I gathered only twenty-seven hundred (2,700) pounds and a fraction, which will make two good bales to the acre. I picked out one hundred bolls in two separate parts of the lot, at four o'clock in the evening of a dry day. Each weighed twenty-one ounces. In the lot was an Irish potato patch that had been manured and mulched with straw twice. I think that portion made at the rate of six thousand pounds per acre. The next best place was about one acre of old pine field, first year, which made, I think, about five thousand pounds.

If you expect such results, you must not cut the roots of the cotton. Cotton is a sun-plant, as you will see by its leaves turning to the sun, as the latter moves through the heavens. So have a deep water furrow in the spring, work flat by hot weather, and on level land run the rows north and south.

The cotton would have been much better, planted the 10th of April. The seasons were as fine as they could be up to the 28th of July. After that, too much rain. The hands I had were all new, and very sorry; the manure was badly mixed and badly put on.

I found during the wet weather, where the most manure was put, it stood the test best especially the part that had the most Peruvian guano on it. There was some rot, owing to the density of foliage and wet weather; some boll-worm and caterpillar on about one-half of the patch.

The result of this experiment on sixteen acres of land, manured with 250 pounds soluble bones, 165 pounds Peruvian guano, and 100 pounds land plaster, per acre, was as follows: It made 32 bales of cotton, the last one being a bale and a half. The crop selling for $125.00 per bale brought $4,000, a net dividend of two hundred dollars and more per acre. The following is an itemized statement of actual expenses and calculation as to net proceeds:

Below is the cost of one acre:

Cost of Manure at Plantation.

250 pounds soluble bones	$ 8.25
165 pounds No. 1 Peruvian Guano	6.25
100 pounds of plaster	1.25
Mixing and putting on	.25
	$17.00
Horse 2 days, $1 per day	$ 2.00
Plough hand, 2 days, 50 cents per day	1.00
Hoe hand, 2 days, 50 cents per day	1.00
Dropping seed	.25
Picking	10.80
Whole expense per acre	$32.05

Net Proceeds.

Proceed sales of 32 bales	$4,000.00
Less expenses $32·05 per acre	562.20
Clear dividends	$3,187·20

This shows a clear dividend, per acre, of $217.95 * * With slave labor, my cotton crops averaged from ten to twelve bales per hand, with other crops in proportion.

I am for the plan that preserves the capital best, and pays the largest dividends. I have no doubt, that on good cotton land, a fair year, I could make one hundred bales of cotton, with one No. 1 mule: Commence operations the first day of December; subsoil every acre; use twenty-five dollars' worth of manure per acre; and finish planting the 1st of May; cultivate sixty acres.

Note by the Editor.

For the purpose of illustrating certain points in the teachings of Mr. Dickson, I desire to report a field of cotton that I visited on his original farm a part of the 266 acres upon which he first started farming, and which cost him fifty cents per acre. This field of cotton had been planted on the 13th of June. Every boll, to the very topmost, was open with beautiful white cotton. Not a green boll was to be seen, and as not a boll had been picked, it was indeed a beauty, and looked like a snowbank.

As stated, this crop was planted on the 13th day of June, and I saw it on the 10th day of November. The crop had grown, matured and opened, to the last top boll, before the 10th of November. By actual count, it had on it 1,400 pounds per acre—nearly a bale. This land was a blowing sand, without clay subsoil, the lowest grade of land known to Middle Georgia. It had refused to yield a living to its owner, and he had sold it for the paltry sum of fifty cents per acre, and moved off to keep from starving.

This field of cotton, which I remember was about twenty acres, had been treated, planted and cultivated by Mr. Dickson, and fertilized to the extent of about $15 per acre. Cotton was then selling for about 20 cents per pound. Hence, this 20-acre field netted him fifteen hundred dollars, less the expense of cultivation. Now, what does this crop demonstrate?

1st. That, under proper treatment, culture and fertilization, paying crops can be grown upon poor lands, even upon blowing sand, which is the very lowest grade.

2d. That the seasons in this latitude are sufficiently long for the cotton crop, and that the planting may be delayed, even to the 13th day of June, with the possibility of a full crop. It shows the folly of planting summer crops in the winter.

3d. That even the very lowest grades of land can be made to produce paying crops by liberal use of commercial fertilizers, with proper culture.

4th. That real success in farming depends not so much upon the quality and strength of the land as upon the scientific attainments and executive ability of the farmer who cultivates it.

1870. —EDITOR.

SELECT COTTON.

Chapter IX.

GROWING WHEAT.

Wheat, as all other annual crops, requires deep, mellow and productive soil, and hence deep preparation is indispensable to large crops. The popular impression, that wheat is a surface root plant, and requires no deep breaking or subsoiling, leads to practical error and failure in the culture of this crop. These advocates claim that for wheat the surface soil should not be turned under, nor should the subsoil be broken, because the plant is supported in its growth by roots that spring out laterally near the surface and simply traverse the surface soil. But what are the facts in regard to this plant?

Wheat has two sets of roots: the first springing from the seed and penetrating downward, while the second set push themselves laterally near the surface of the ground from the first joint! Hence the roots of wheat penetrate and traverse the entire depth of the broken and fertile soil, and extract their food from every part of the soil. The product of the crop will be found to be in the ratio of its extent and fertility. It likewise requires, as do corn and other crops, a deeply broken soil to gather and retain a sufficiency of moisture to enliven the plant in its growth and fruitage—to keep it from famishing.

The same class of land that grows cotton will grow wheat. In this section of Georgia I would select a brown or mulatto soil with a moderate gravel; but wheat will succeed better on heavier lands than cotton.

Making Wheat Hay in Troup County.

In my system of rotation of crops, wheat follows the corn crop. As soon as the corn has been gathered, and the field grazed off by the stock, broadcast the land with two or three hundred pounds of my "compost" to the acre, and sow from a half to a bushel of wheat to the acre, according to the strength of the land. With a small-sized turn-plow turn over the land about four inches deep, following in each furrow with a good subsoiler. When finished, drag a fine brush over the land with a pair of horses, always moving the brush on a level, if it requires to cross the plowing. With me this plan has succeeded well.

Another plan is to break deep, subsoil and harrow the land. Then sow the wheat and manure, and harrow in, then roll it.

Still a third plan may be tried, which looks simply to raising grass, with a prospect of having a crop or not of wheat: Sow the seed and the manure, if you intend any, at the same time. Turn over the land with a turn-plow, four inches deep. Brush or not as you may have time. If the wheat comes sufficiently to pay for cutting, do so, if not, turn the stock on it—using it as a pasture during the balance of the year.

RUST IN WHEAT.

Rust damages hill and dry land less than wet or low lands. So far as my observation has been, rust is entirely from the atmosphere, increased by the condition of the land, and I know of no preventative for it. The early varieties are less subject to it. Later varieties produce more per acre, provided they are not attacked.

Wheat can be saved with a common scythe blade, or more profitably where the reaper can be used, always using a thresh as the means of getting it out. The main profit derived from the culture of wheat is the fact that it leaves you, after cutting, a large quantity of vegetable matter, to be incorporated into the soil, to increase the quantity of cotton per acre the succeeding year. Patriotism says make your meat and bread at home and be independent.

All of the above plans are applicable to every other species of small grain.

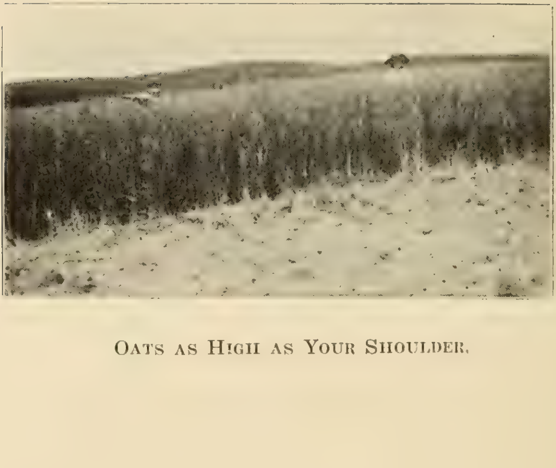
The cultivation of small grain is necessary to carry out a system of rotation of crops and if you do not sow them you must rest your corn lands. Now choose between the two systems. Sow small grain, or rest your corn lands. You can hardly make less on them than the worth of the seed in sowing.

The reader will observe that I have not attached much importance to the wheat culture as a crop on my farm; nor do I advocate its culture as a crop, in the cotton belt, because cotton as a crop, pays much better. I only advise it as a part of my rotation system, for the benefit of my cotton and corn lands. This field that I put in wheat would rest anyhow the next year. The manure and the breaking in the fall will contribute to the production of a fine crop of grass and weeds the next spring even should the crop of wheat prove unworthy of the scythe. The land had to be rested, and it paid to prepare and fertilize it for a crop of vegetable matter to recuperate the soil for the next cotton crop. But my crops of wheat have paid directly in results and tenfold in improving my land for other crops. Under the policy that I advocate as a farmer—"Let us be independent," I do advise every farmer to plant, at least, a few acres in wheat. These few acres, heavily manured, will give him his supply of flour, and, in addition the rest, and crop of stubble and grass will wonderfully recuperate the land, and return the profit in the cotton crop next year.

NOTE—I would emphasize some of these points, as stated above for the wheat culture, illustrating two cardinal principles as components of my system of farming:

1. In contra-distinction to the popular theory, that wheat is a surface root crop, and hence, must be scratched in with a scooter plow, I advise the practice of turning under wheat land to the depth of, at least four inches, putting the surface soil that many inches deep under, and, in addition, breaking the subsoil beneath. I advise this upon the broad fact relating to vegetable life—that all annual plants, for thin growth and fruitage, utilize and appropriate the soil nutriment of the entire available depth and area of pulverized and fertile soil allotted to them by space. The surface scratching in, leaves the plants no depth to traverse for the obtainment of food, and hence the crop is practically impoverished, and the yield a failure in results. It appropriates the strength of an inch depth of soil, whereas, it could as easily have appropriated the entire fertile properties of four inches depth. This principle is as sound in regard to the wheat crop as with corn and cotton.

2. The wheat crop, the same as other annual crops,



OATS AS HIGH AS YOUR SHOULDER.

requires a depth of broken and mellow soil to imbibe and retain a sufficiency of moisture to prevent the crop from famishing during accidental spring drought.

These facts which are true in principle with other crops, hold good in the wheat crop. Hence I advise farmers to sow in wheat, oats and rye, one-third or one-fourth of their tillable land, and for the following reasons:

1. With the fertilization, turning and brushing as first directed, the crop will pay, per se, a handsome dividend.

2. It indirectly pays a large percentage in the way of permanent improvement of the land by furnishing an abundant supply of vegetable matter from the straw stubble and accompanying crop of grass and weeds, which the land, more than anything else, needs.

3. The turning into the soil in the fall a good supply of manure, greatly increases the crop of spontaneous growth that springs up the next spring, the year of rest, to shade the land, protects it from the summer's sun, and adds an additional supply of vegetable mold to the soil. The profits, then, may be counted—not only in the crop of grain raised, but in turning under of vegetable matter in the fall, and the more luxuriant crop of weeds during the year of rest, promoted by the manuring of the wheat crop. It will leave the land in doubly, a better condition for the following cotton crop, than if it had not been sown in wheat, as directed.

Hence, in carrying out the rotation system suggested, I repeat the injunction—sow wheat and oats, if not for the sake of the grain crop, do it for the good and permanent improvement of the land—recollecting that the general treatment of lands may not be neglected by any farmer expecting real ultimate success.

CHAPTER X.

POTATOES, TURNIPS AND VEGETABLES.

ON THE TWO FIELD SYSTEM TO SAVE LABOR. SELECT TWO PLATS OF LAND FOR THIS PURPOSE.

TURNIPS.

From the 20th of July to the 15th of August is the best time to sow turnips.

Lay off the rows three feet distant, opening the furrows six inches deep. Use compost and commercial manures, with ashes sufficient to make it very rich. Bed the land the same as for planting cotton, and strike it off. Open by hand with a little hook. In the small furrow deposit the seed and cover them about an inch deep. When they have three or four leaves, shave through the drill with a hoe, four inches broad, leaving from two to four plants in a hill. A few days afterwards, side as you would cotton. When the leaves are about three inches long, go over and cut any grass that may have been left, and thin the plants tc one plant in a hill. In case, afterwards, there should be any grass or purslane, it must be taken up clean, leaving nothing to come to seed but the turnips. The next spring this is to be the potato patch.

SWEET POTATOES.

If the land be not rich enough for potatoes, some commercial manures may be added in the bed, as for cotton. Plant the potato draws twelve inches apart in the ridge.

I prefer them thick, as they will not grow so large, and will make more bushels per acre. Cultivate the potatoes with a sweep as you would cotton.

When you wish to lay by, you can use a sweep to set the hill. Side with a sweep, and with an old sweep whose point has been worn short, and putting your clevis on the top side of the beam of the plow, run out the middle. Hold the plow handles well up, and make the team move briskly; and if the first furrow does not throw the bed out sufficiently, run your sweep back in the same furrow, making two sweeps to each middle. You will have a nice flat bed; and if this work has been well done no hoe will be needed in the potato patch.

After frost in the fall is the proper time for digging and saving potatoes. The work should not be commenced till after the morning frost has melted away, as the least frost will prevent them from keeping.

With a long scooter plow run on each side to show the potatoes, and then with a long shovel plow run in the middle, splitting out the potato ridge, and throwing all the potatoes out. The hands should follow the plow and carefully pick them up. Potatoes should be handled without bruising. I prefer good open dry weather for digging. There are many ways to save potatoes. I will give only one method.

Dig a hole, a round circle, about six inches deep, where the water will not settle; fill it full of straw; pour about fifteen or twenty bushels of potatoes on top of the straw; and then round them all. Cover the potatoes with straw; a few corn stalks may be laid around the straw, but this is not essential. Set up your forks, and cover well. In one or two days, put dirt around the hill one-half way up, as thick as you intend, but not less than seven or eight inches; and as the potatoes sweat and dry out, you can continue to add dirt until you get to the top of the hill. They keep either with a small hole left at the top, or none, about equally well.

By having two lots, the two lots will produce three crops each year—a crop of wheat, a crop of potatoes, and a crop of turnips—wheat first, turnips second, and potatoes third. Sow wheat as soon as you dig potatoes; as soon as the wheat is off plow the land for turnips; plant the turnips the last of July or the first of August; use them out, except a few rows for seed, by the time to plant potatoes.

SUGAR CANE.

My experience in the growing of this crop has been very limited, but quite successful. I have found a rich alluvial soil, moderately dry, or a rich heavy clay land the best for sugar cane. Thinner land, a little more sandy, I have found produced cane that contained more sugar to the size of the stalk, but not yielding so much in quantity. About the middle of February, is about the best time to plant in this latitude. The land should be manured heavily by broadcasting compost or commercial manures. Turn this under deeply and follow with subsoiler. Make the rows with a large shovel six feet wide, and plant the cane, covering with two small shovel furrows. Sugar cane has a greater quantity of roots than corn, and hence more care should be taken not to destroy them by deep culture. Plow lightly with a large sweep.

In bedding down the cane, for seed, it should be stripped of all the fodder, to prevent its heating the cane and thus destroying the eyes. Occasionally lay cross-pieces to keep the cane from lying too close together and causing it to heat. Cover it sufficiently deep to protect from cold. This is only to instruct those who wish to make small quantities. Those who have followed it as a business must certainly know more about it as a business than I do.

GROUND-PEAS.

Ground-peas are sometimes cultivated between corn, for stock. For a patch for family use, choose a plat of good mulatto land, clay subsoil, moderately rich, with a little addition of the "Compound." Lay off about three feet distant, three inches deep, and drop the seed in the ground four inches apart, and cover lightly. The time to plant is as early as they will escape from the frost. Cultivate on a level with a sweep. Keep the ground loose under the vine, and never cover the vines when they begin to run. There is one sort that runs up straight. Top them off. If the land is too sandy, or too rich, the pods will fail to have the fruit in them, and make what is called pops.

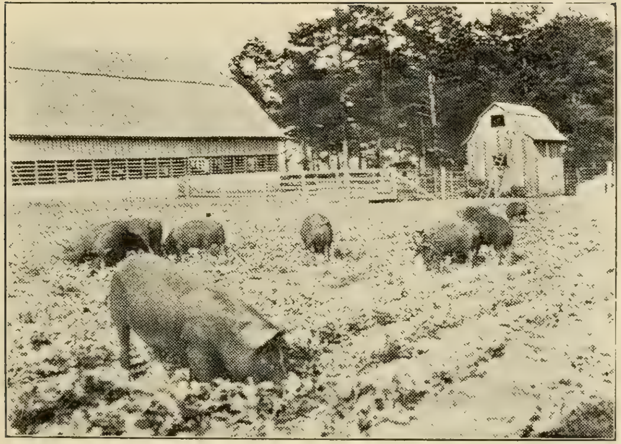
THE VEGETABLE GARDEN.

The vegetable garden should be made intensely rich by hauling in compost or barn-yard manures every year. This should be trenched in, or turned in with a large turn-plow and deeply subsoiled every year. This will keep the soil rich and deeply mellowed, and thus prepared for every garden crop. The barn-yard manures will furnish an ample supply of vegetable matter, and the ammonia and other fertile elements incorporated with it will keep the soil sufficiently rich for the production of any garden vegetable. But during the planting, other chemical manures may be added to the several crops planted. As the safest practice, if you wish unfailing success in garden crops, keep your garden spot well enriched and deeply subsoiled. It will thus be ready all the time for any crop and for any succession of crops during the year. Remember you must manure every year if you wish a fine garden. I will only mention the culture of a few of the most usual vegetables grown for family use.

IRISH POTATOES

Require a rich, loamy soil, a little inclined to clay. Prepare, plant and cultivate as follows: After making the land rich, break and subsoil deep. Lay off the rows four feet apart, and six inches deep. Put in compost or commercial manures around the potatoes after dropping them about fifteen inches in the hill. They may be dropped whole or cut in halves; cover level with the surface.

The crop may now be mulched with pine or wheat straw, eight inches deep. Or wait till the crop is well up; then give it one working, with a small hill made round the potatoes, and then mulch with straw. When the year is seasonable, the crop succeeds finely without mulching; but the mulching obviates the disastrous effects of drouth and secures, without failure, a good crop of potatoes.



Grazing Hogs on Rape.

Two or three different plantings should be made—in October, the first of January, the first of February, and the last planting about the first of March. A fall crop may be planted in June, but it will not succeed unless it is seasonable. They do not keep well in this climate, but may be kept sufficiently well by treating them as you would sweet potatoes. There should be less quantity put in the hill, which must always be sheltered and kept dry.

CABBAGE.

This crop only succeeds as a summer crop in this latitude, as I have found it very difficult to raise fall cabbages. The land must be clay, and made rich with manures and phosphates. The soil must be deep and mellow so as to make the growth of the plant luxuriant. If the crop does not grow off rapidly, the plants will not head well, and hence will prove a failure. In planting, give them four feet by two in the drill. Cultivate very shallow, and work them frequently to keep the surface fresh and readily permeable to the atmospheric gases. If sowed early, look for cabbages from the middle of May till September. The common collards are cultivated in the same manner.

BEETS.

For the cultivation of this crop I have a peculiar way, preferring the small young, tender beet, never to exceed an inch and a half in diameter for the best in quality. To obtain this you must have a rich soil, and very deep preparation. Plant once a month. Sow your seed quite thick, and you may commence eating by the time they are half an inch in diameter. The more thrifty plants will grow ahead, and you can take them out and thus thin the balance. I prefer the long blood beet, but the turnip beet for forwardness. The best crop needs the same shallow cultivation as other crops.

TOMATOES.

The enriched and deeply prepared soil as advised for your garden will grow tomatoes luxuriantly. They require nothing but rich land, planting and cultivating. I prefer the small cone, not to exceed an inch and a quarter or an inch and a half in diameter. They are always the best on the fresh vines. To obtain the young vines plant frequently. If you do not have the plants, you may cut off the limbs and transplant. This crop needs brushing or framing up to support the vines during fruitage. This is absolutely necessary.

ONIONS

Are easily made, requiring only a rich soil, deeply prepared. In addition to other manures, ashes and hen manure are fine. Mark off the land after preparation, twenty inches. Set your plants about two inches in the ground, four inches apart. With light culture, keep the crop clean.

MELONS

Should be made on a large scale, both watermelons, nutmegs and muskmelons. A patch should be planted every two weeks, from the first of March to the first of August. Fresh vines always produce the best melons. Moderately sandy or loamy land is best adapted to their cultivation. Old fields, or pine lands that have been cut down and let lie for one or two years for straw to rot, is one of the best varieties of soil. The ground should be laid off about twelve feet each way.

After it has been deeply ploughed, dig a hole about three feet square, and put in eighteen inches of manure. Thus prepared and planted, it should be cultivated as other crops. Use as much manure as you would for ten or twelve hills of corn. Plough them as long as the vines will admit of it; even when they are three or four feet long you can turn them up and plough them.

Almost any variety of land will make watermelons. First year's land I have never thought quite so good for watermelons. If you wish to make large watermelons, leave but one vine in the hill; watch your patch, and pull off those that have a runted appearance early; let them get ripe before pulling.

The cantaloupe, nutmeg and muskmelon may be all cultivated the same way, requiring only less distance, say six feet.

CHAPTER XI.

FRUIT CULTURE AND CARE OF STOCK.

APPLES

Require a strong, clay land. They succeed well in coves and valleys. They should be planted about three or four inches deeper than they are in the nursery, to prevent their blowing down. Train the body four feet high. Pruning should be done annually, before the limbs become of any size, and kept moderately open. The land should be cultivated every other year in cotton, and the succeeding year turn under two green crops of peas. It will do well if you manure highly every year in cotton, always returning as many seed back as were taken off. Caterpillars should be taken off clean every year before they eat the leaves off. Examine for worms about the roots and other places. If the plough traces skin the trees while young, a black bug will get in the bark and kill the tree. Apples do not succeed very well in this latitude; but enough can be made for home use for cider, and supply the vinegar.

Cotton succeeds much better under apple trees than it does under peach trees. Plant apple trees twenty feet each way. I have no particular varieties that I can recommend with certainty. Summer fruits do better than fall and winter fruits.

Peaches require strong clay rolling land, not very rich, planted ten feet in the row, and sixteen feet apart. No crop can be raised to any profit on the land, except peas be turned under. I find this thick planting always to produce less rotten peaches and sweeter ones, the reason, as I suppose, is, that the trees evaporate the excessive moisture by being planted thick, to a greater extent than when they are planted thin. I have found by observation, that peaches in an orchard thickly planted, rot a great deal less than an open tree out in the field. The late varieties require richer land than the forward kind.

I have entirely failed to raise pears in the sandy lands.

STRAWBERRIES.

Strawberries require a mulatto soil inclined to clay. They require a deep cultivation. The manure should be scrapings from rich lands, ashes and phosphates, with a small sprinkling of salt and plaster; and as land is cheap in this country, I would recommend a large patch, since by working them they could be repaid. It is left to the taste of the cultivator whether he will have his strawberries near his house or near a stream.

After the ground is thoroughly spaded or subsoiled, ploughed deep and levelled, lay off the rows by a small mark four feet apart; plant each hill from eighteen to twenty inches apart. Cultivate level, and clean as you would cotton. They may be either mulched in the spring by straw, or kept clean by cultivation, as the cultivator may choose. One plat will answer the purpose. The second year, make a mark in the middle of the row and spade it up deep, adding fresh manures and vegetable matter. Late in the fall, or early in the spring, set out a row in the middle, and at the end of the bearing season the old row may be hoed up. Every fall the patch should be ploughed, subsoiled and levelled, and a small quantity of manure added. Repeat the operation annually, as long as you wish to eat strawberries, cream and sugar.

RASPBERRIES

Require a deep, loamy soil. Plant them in rows six feet apart. Set up sticks to keep them straight. Keep them clean by hoeing and ploughing, as you would corn. After bearing, cut down all the old canes.

Another mode is to plant them around the edge of the garden, and tie them back to the garden fence, and keep them worked clean. If you plant sufficiently, and cultivate them either way, you will never fail to have a plenty. They are a certain fruit.

I have had but little experience with the other small fruits.

VINEGAR MAKING.

Put the cider into a very tight barrel, and at the end of two or three months draw it off, and put it into a new barrel. If it does not have the appearance of a sufficient body and proper acidity, add a little whiskey once a month, till you give it a sufficient body. Time will convert it into first-rate vinegar.

CIDER MAKING.

Cider, in a great measure, depends on the quality of the fruit from which it is obtained. A variety of crabs, known as cider apples, is of the first-class for cider; many other varieties of apples make good cider, such as the Shockley, Romanite. It is necessary that apples should be sound and fully ripe to make a first-class article of cider. Beat or grind fine, and let it remain twelve hours without pressing. Press out all the juice, and strain it into a clean barrel, it will keep better when the barrel is full, and stand the weather better. To let it ferment like wine will improve the quality of the cider.

To make cider to keep through the winter, put into it one pound of clarified sugar to the gallon. To make it for bottling, and long keeping, put two pounds sugar to the gallon, and let it ferment. At the end of six months, it may be bottled, and will keep till used. I have some now that is fourteen years old. If you desire to make fresh cider of it at any time, put small quantities of it into a jug, add about half the quantity of water, let it stand till it begins to ferment, and it will be ready for use, having the appearance and taste of cider just pressed, only a purer article.

Note by the Editor—A little pleasantry over a bottle of wine.—A few years since, I was dining with Mr. Dickson, with a number of other gentlemen. After we had been served with a sumptuous feast, according to the style and habit of the "prince of farmers," we were tendered a glass of fine wine, accompanied with the question which was extended to all the gentlemen present at the table: 'What wine do you take this to be?" The gentlemen, one by one, responded, some guessing one brand and some another of the finest known brands of wine. Mr. Dickson smilingly answered: "This is nothing but apple cider, and the glass of sweet cider at your plates is exactly the same, with the addition of water and a little sugar. It is cider that I made several years ago, and it is constantly improving in flavor and richness of taste." The ruse was enjoyed by all the gentlemen present, and a social compromise effected by telling us the process of making it, which was as above described.

But the joke was enjoyable withal; for the gentlemen unanimously declared that they had never tasted finer wine than was Mr. Dickson's cider.

CARE OF HORSES.

To get the greatest amount of labor from mules and horses without injuring them, requires the greatest care in feeding, watering and housing. Where oats can be easily made, half feed on oats and half on corn, with fodder and hay, is the best food for horses. I have long contemplated grinding the corn or oats, and baking it into bread for horses, but never tried the experiment. I think that would be the best preventive of colic of anything that has ever been tried.

Large, dry and open stalls, one mule to each stall, I consider the best mode of housing them. It is necessary to take all the advantages for working them with ease. Kindness is necessary, the horse doing much better when treated kindly than when fretted and abused. If a mule or horse is well treated by those who work them, he will become attached to them and do better service.

Both Dickson and Smith Raised Their Own Meat.

Milking Time at Jim Smith's Farm.

Raising Hogs.

I will simply give my practice under slavery, which will be equally efficient now, when freedmen become more honest. Always select the best boars and sows out of the best breeds. Having carried the land through a state of improvement with guanos for a number of years, incorporating bone dust into the soil, it will produce a fine growth of weeds on the land after laying by, which will grow finely until they are turned in. The practice is to move the hogs along before the plough, from field to field giving them only a bushel of corn to a hundred in number. Let them feed on the supply of turnips during January, February and March, and on the rye and grass until about the first of May, then return the hogs to their permanent pastures, and let them run on lands that have been at rest. They will not injure the weeds at this time, and having such a fine start they will continue to improve. Having sown the previous year some of my corn land in wheat, oats and rye, and saved what I could of them, being on an average of about two-thirds of the crop, I turn the hogs on this field, where they will be well sustained until pea-time.

If you wish to fatten early, plant a field in early peas; turn your stock into the corn and peas. I have always been accustomed to put peas in every corn row, and corn land being in good heart with former manuring, would make peas sufficient to last until February. Peas never kill hogs; but particular kinds of soil in the field may kill them, such as clay, pipe-clay, and prairie lands. The best preventive is a plenty of vegetables, such as potatoes, pumpkins, turnips, and a plenty of salt and copperas. On my land, none die from eating peas.

About the middle of August, select out your hogs you wish to fatten; feed them with corn awhile, say three or four weeks, or until the pea field is ready for them. When they have eaten off the peas, put them up in pens, well littered, three or four in a pen, and feed them on corn. The best way is to have the corn ground, and cook it for them.

Under this system, I used to raised from eight to twelve hundred pounds of pork per each hand. By fencing the whole lands, many things accumulate that sustain hogs, which amount to a great deal in the whole. Stock should never run on the same field two years in succession, but should be changed, in order to allow an accumulation of worms, bugs, mussels, fish, and many kinds of roots—all of which hogs devour greedily. They are also fond of herbs and wild fruits.

Hogs in the swamp feed to a considerable extent on leaves that have been rafted up, and are in a decaying state under the water. This I know from killing wild hogs in good order, and, on opening their maws and intestines, have found nothing in them but these decayed leaves and muck, and from having often seen them eating these leaves in branches and swamps.

SAVING BACON.

When you kill your pork hogs, cut the bacon, spread it, and let it lie long enough to get out all the animal heat. Then salt it down—covering it thoroughly with salt.

When it has salted long enough, hang it and let it well dry; then subject it to the following process to keep it sound and sweet by keeping off the skipper fly:

Get you some ashes, by burning sweetgum, hickory, and maple, either separately or all mixed. Take down your meat about the first of March, wipe it well to get all the skipper eggs off. Have a rack of round sticks, on which other sticks are laid twelve inches apart; lay the meat on it, and cover over the fleshy part well with ashes. As soon as the skipper fly makes its appearance, use the common fly poison in smoke-houses, made up just as for house flies; renew it twice a week, and it will attract the attention of the skipper flies, and kill them, and run out the rats, too. If the above recipe is followed strictly, there will never be a skipper in the whole number of your hams and shoulders. A dark and tight house is always preferable, so that the ventilation comes down throughout the top of the house, which should be well wired to keep the flies from coming down.

HONEY AND THE HABIT OF BEES.

Honey may be obtained in sufficient quantities for the use of families, by boxes simply being made of twelve-inch plank, two feet, four inches long. A little attention is requisite in order to keep the worms from collecting around the edge of the boxes, and doing up and eating the honey. Always have hives ready when the bees swarm in the spring of the year, and a good place for them to settle on; saw off the limb when they have settled, place it to the mouth of the empty gum, which should be elevated about four inches. With a little attention, the bees will soon go in. At night, move the gum to the bench where it is to stand permanently, which should always be in a shady place, and protected from the rain.

About the 10th to the 15th of May, is the proper time to take the honey out, which may be done by tying a sheet around the mouth of the gum, laying it on a table, with the head a little the lowest, blowing in a little smoke, then with a knife, with a little blade, cut across the honey, and take it out in squares, scrape the sides of the gum clean, and return it to the bench from whence it came. If handled nicely, the hive will be equal to a new hive.

This is the easiest and plainest way to obtain honey. The improved hive, with supers on top, furnishes a more neat and easy way of taking it.

Honey is obtained from flowers, and from the honey-dew that comes on a dry year. The comb is secreted from the abdomen of the bees; young bees only being capable of producing wax.

No hive has more than one queen. I have sometimes known two queens to come out, which fact you can ascertain soon by the bees being agitated. Looking under the gum, or around the hive, you will find one of the queens taken a prisoner. If you take her out from the gum, all will be quiet. In other instances, I have found the hives without any queen, by the agitation of the bees. Look around on the ground and other places, and you will find the queen with a small knot of bees on her; take her up and carry her to the gum, and all will be quiet.

Bees have not changed their habits in the memory of man. They raise quite a number of queens in swarming

Small Flocks of Sheep are Profitable in the South.

time. If any of them have the least blemish in the world, they are put to death, and thrown out of the hive. I have often found as many as six or eight of them in front of the hive. On examining one, I could see the fault for which she was killed—she having been imperfect in some particular. The same thing is true of the neutral bee; each one is examined, and should the least blemish be found on it, is put to death. When the swarm is perfect, and the queen also, the first favorable day they swarm out.

There are many other habits I have noticed in the bee. Some ventilate the hive, in hot weather, by fanning with their wings; some carry in water, and some compound it with bread to make food for the young bees, some bring the honey, and the others the bee-bread; but no two kinds of bread are ever deposited in the same cell. Everything is order, system and industry. All the cracks in the gums the bees seal with sweetgum. I have, when a boy, often taken it from the gums and chewed it.

OUR PRESENT SYSTEM OF LABOR.

The present system of labor does not exceed sixty per cent. of slave labor, involving a loss of fully one-third of the labor by the men going to villages, railroads, mining and other enterprises. One-half of the women and children are absent, housekeeping, idling, and other things. Under the slave system, the women, and children were the mainspring of cotton-raising. The loss of labor and inefficiency of labor, are about equally compensated by the increased price of our products. One of the reasons why there is a deficiency of labor is, that the men take Saturdays to go to public meetings; they do not work as many hours in the day as they formerly did, and their work is not of as good a character. Each family must have its housekeeper and washer, and must send to mill, if they only send a half-bushel of corn. A great loss in their labor also results in their having to stop to gather fire-wood, and attend to their gardens and patches.

The only partial compensation we will ever get for this loss and inefficiency of labor, is the increased price of our products—the high price of cotton. I submit, is it good policy to encourage immigration to bring down these prices, and lose the only benefit that we can ever derive from the result of emancipation?

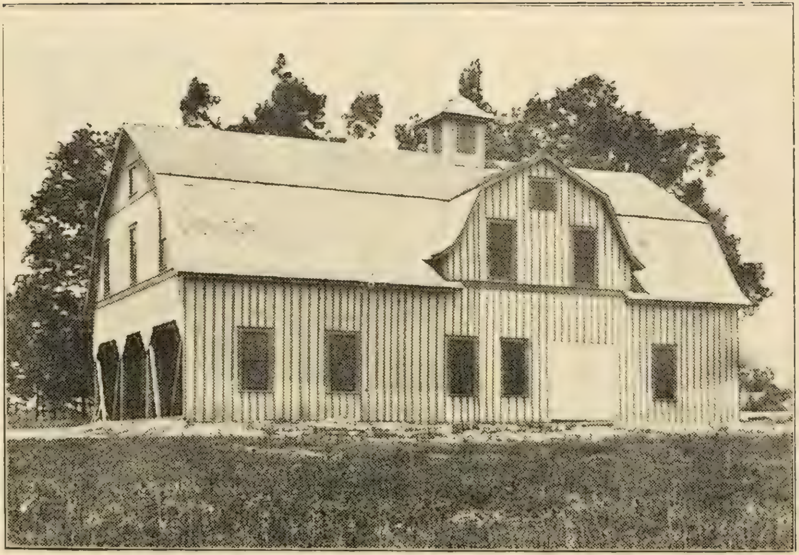
The best method of hiring, I consider to be wages—contract setting forth the duties of each party. The policy of managing freedmen is, to act firmly, and truly, and honestly with them, and require them to do the same; and as a good stimulus to do this, never pay them more than half wages till the end of the time for which they contracted to work. On plantations of any considerable size, the actual necessaries should be kept, and sold to the freedmen at a profit sufficient to pay all risk and interest on the money. Those who work on shares should divide the profits and responsibilities with the land-owner. The rent of the land should be one-third of all the crops gathered; another third should pay for the horse-power, machinery and tools. The laborer should have one-third, he finding his own hoe and axe, it being impossible to keep such things as plantation tools. The whole direction of the laborers, the management, gathering and the sale of the crop should be held by the land-owner. What is left on the fields and the use of the pasture, should be the land-owner's, after the hands cease to gather the crops. As the land-owner furnishes the land, and all the expenses of the tools, the laborer should pay him two-thirds the value of all the days that he was not employed.

One objection to the cropping is this; you can not carry the improvement plan to the extent that is desirable. The laborers are unwilling to do as deep ploughing as is required—to purchase as much fertilizers as will pay a profit. You would lose the services of the laborers on rainy days, and at other times between crops, that might be used to great advantage on a farm.

In hiring laborers, a man should never allow less than fifty per cent. profit on the labor, for he is taking the risk, and paying for the laborer, the land always coming in for a third. Where the farm is rented to parties of capital that furnish everything, the land should be kept up by manuring, the fences should be repaired, all the droppings of the farm saved and applied to the crops, the buildings should have all the repairs done on them where mechanics are not required; the land should retain one-half. No renter or cropper should ever think of having stock to the extent of depredating on the employer's land; should the contract be made for raising stock, I know of no reason why the land should not draw an equal proportion of stock as well as of crops. Seed and shucks should never be removed from the land. When new renters come, furnish them seed, and let them use the shucks; when they leave, let them leave the shucks. If they make more than one crop, let them use the seed for manure until they leave. The way to make the estimate to get the fifty per cent. on the work is to take off one-third of the cotton crop for the land, one-third for the fences, including the machinery, and then give the laborers, in wages, what would be equal to two-thirds of one-third of an average crop. The reason for reserving this one-third is, that the employer takes all the risks of storms, drouths, worms, caterpillars and boll-worms, and of prices lessening and of every other disaster. Let the laborer share the risk and insurance.

* * * All of my trained hands have now applied to come back, preferring one-third of the crop gathered on my place, to one-half on the places worked last year. Whilst I owned them, they told me to plant thirty-eight acres in corn and cotton, and seventeen acres in wheat and oats, and they would cultivate it with my aid, in preference to twenty acres under an overseer, and could do it with more ease. My crops before the war, averaged me $1,000 per hand. I divide thus: $200 for manure, $200 for horse-power, tools, etc., $300 for land and $300 for labor. My estimate is now, when hands work well, to divide as follows: First, take my pay for all purchased manures; the balance to go—one-third for land rent, one-third for horse-power and all tools, including gins, wagons, carts, wheat thresher, etc., hoes and axes excepted, which each hand should furnish and one-third to the laborer, being divided among the hands that produce; the cottonseed to be returned to the land, all crops left in the field ungathered to go to the owner of the land.

The farmer should, by all means, save a portion of his income accumulated from year to year, and get in a condition to buy everything for cash. Sell cotton for cash.



THE "MANSARD ROOF" MAKES THE BEST BARN ROOF.

Other things may or may not be sold on time. When you mortgage your crop, you lose your independence to that extent. Keep a cash capital equal to one year's expenses. Invest in stocks that are readily convertible into money; it will enable you to hold your cotton until you can get a price that will be remunerative. Make all supplies at home that can be made; and as you accumulate capital, you can enter into joint stock companies for manufacturing, banking, discounting—fill up the whole vacuum, so that a foreigner's dollar can find no investment here. But having a mortgage on your property will create a tax for all future labor.

In the course of time, the planters will have the capital here to export their cotton directly to Europe—bringing goods directly here, and saving all accumulations of profit, freight, and other contingencies. The planters in the Cotton States can save forty millions of dollars annually without feeling the loss of necessaries or luxuries. This forty millions of dollars, if invested in railroads and manufactories, would soon put us on a par with any portion of the world. In a few years, this forty millions of dollars, with the interest on the first forty millions, would enable us to purchase a large portion of the bonds of the world. Tribute would come from every portion of the world to the cotton regions, instead of going out as it now does. We are making about three hundred millions of dollar's worth of cotton a year, at the prices it has ruled for the last three years. This forty millions of dollars, counted as income, will amount to near fourteen per cent. of the aggregate value of the cotton crop, and any people that can save such per cent. can certainly become independent.

Cotton does the best in this latitude, but to continue to make it pay, the cotton planter should make his whole supplies—corn, cotton, meat, and everything necessary to run the farm; then the balance of the labor will make more money than if the whole labor was engaged in making cotton, by the increased price of the cotton. What corn you wish to use at home, you should not count the cost of making, but make it, and you will be remunerated in the increased price of the cotton.

Encourage manufactories, that they may be supplied with the products of your farms, spinning up the cotton, working up the raw hides into shoes, that you may get them without any carrying trade to any distant portion of the world to be manufactured and brought back—get them at a less price, and make a profit on the products furnished them. Take this labor from the cotton field, and increase the price of your cotton in the same ratio.

CHAPTER XII.

ON IMMIGRATION.

SPARTA, GA., June 10, 1869.

EDITOR SOUTHERN CULTIVATOR:

I wish to call the attention of the cotton planters of the South to the subject of immigration. It is one of greatest interest, and if successful, I think will prove destructive to the cotton interest. I do not wish my views to prevail unless they are right. I wish both sides to be heard, and hope those who can wield the pen, and who agree with me, will be heard; the other side has been heard already, and we have been taxed to promote this cause. The State of Georgia is moving for our destruction.

The negro we have with us, and we can not ret rid of him if we would. They will not die out, as most of our Northern friends and many of our people think. The next census will show a large increase. The only way to make it tolerable for them to live amongst us is to give them *employment*. With full employment they will steal less, be more law-abiding, and a less nuisance in every way. Do we want more labor, and for what? The agricultural interest at the South is chiefly valuable for its production of cotton, tobacco and rice. Can we make more money by doubling the quantity of labor than we can out of what we now have? Do numbers increase the quantity of labor pro rata, or will the dividends be greater for all concerned? Can the first million of people in Georgia, having the first choice of lands to cultivate, and the balance for pasture, make more or less than the second million, having the poorest half to cultivate, and no waste land for stock to graze on? Is the second million likely to be more skillful, industrious, law-abiding and enterprising, etc.? I think history teaches us that a population, with plenty of room and land, are more cheaply governed than a dense population—can live better, and can have more labor to spare for improvements. What country has built the same amount of railroads and factories as the United States? The United States having plenty of lands to cultivate, by selecting the best, can, with one-half of its laborers, make a plenty of all the products of the soil, whilst the other half can build railroads and machinery of all kinds and work them. The cotton States, with their present labor, can build more railroads, erect more factories, develop more mines, carry education and refinement to a higher point, than if the population was increased fourfold. With cotton at twenty-five cents per pound, you have money to do whatever you wish collectively. In 1848 and '49, with nine hundred thousand to one million bales of cotton in Liverpool, cotton sold in Augusta at four and a half to five and a half cents. With three hundred and fifty thousand to four hundred thousand bales at present in Liverpool, cotton is selling in Augusta from twenty-five to twenty-nine cents per pound. Why do you wish to make the change? Our Northern friends say if we do not produce cotton cheaper, we will lose the trade. I am willing to lose it, if it can only be held by making cheap cotton. If they would take a little more interest in preventing the loss of our liberty, instead of the loss of the cotton trade, it would inure to the benefit of both sections. Give us our liberties and constitutional rights, with our best men to represent us in all departments, and we can make as much cotton as the world wants, at fair prices, if it be ten millions of bales, without an outside man or dollar. Good government would do more to develop this country than all the men and money in the world.

Cotton planters, it is not to your interest to sell your land at a mere nominal price. How can you invest your money to any better advantage? Land must advance in price. In thirty years, without a single immigrant, Georgia will have a population of two millions of people, the sons and daughters of the present population. Be patient; wait for the natural increase, and what may voluntarily come. Do not spend your money to hasten an over-populated country. It will come soon enough; and when it does come, you will have no outlet. Some are willing to cut their lands up into small lots, and give every alternate lot to immigrants, thinking it will more than double the price of the balance. What do you care what your lands are worth, if you have none to sell—besides, it would reduce the price of cotton more than one-half, and the land you have left would not pay per acre one-half of the dividends they do now—reducing your profits three-fourths. You have a plenty of native poor people to sell land to if you wish to part with any.

Do those who have no land wish competitors in labor, and in the land market—reducing your wages one-half or more? Do you wish a great increase of money capital, reducing the rate of interest to the standard of Europe, causing all property to rise in proportion to the fall of interest? Your wages are fixed by the surplus of cotton you have to export, and the price it will bring in Liverpool. Your prosperity depends upon the scarcity of labor and a high rate of interest. You have nothing but your labor—you can not borrow money, even if it gets down to two per cent. The value of your labor being fixed by the value of cotton in Liverpool, where interest is low, you can, by residing where it is high, acquire proportionately much more land in a given time.

To those who have land to sell, or more than can be worked, let me say, the very scarcity of labor will make one-half of your lands bring in annually more money than if all was planted; the other half is worth five per cent. to grow broomsedge for grazing, and will advance more than five per cent. annually. For the safety of the manufacturing interest, especially in cotton, it is not prudent to push it too fast—not faster than markets can be found for the products manufactured. Just as sure as the winds return the water, to be condensed and fall again above the shoals, the people here will possess the money, and energy, and skill, to put the water to work; and to effect this most speedily, we want a scarcity of labor, that there may be a scarcity of cotton, and correspondingly good prices.

With cotton at twenty to twenty-five cents per pound, we can in Georgia appropriate ten dollars towards increasing our manufacturing interest with more ease than one dollar, with double the labor, and cotton eight to twelve cents. Where are the laborers best fed and clothed?—where labor is scarce. Where does land pay the best profits?—where labor is scarce; and the reason is, the products of the farm bring the best prices under these circumstances.

I am equally opposed to begging for money to be brought to the South to be invested. If capitalists come of their own accord, let them come, but it is not to our interest that they should. You now own the property of Georgia; if you sell one-half of it, you will own but the other half. It is very difficult to transfer real property from one country to another. The most you would get would be the means to live and dress fine for a few years.

What we want is a system of saving and properly investing each year. We could and ought to save annually fifteen millions of dollars, to be invested in machinery. That would pay future dividends, to be reinvested. I am for more labor too; but I want such as we may never regret acquiring. Accumulate all sorts of labor-saving machines; improve your land to a capacity double its present rates; improve your systems fully double of what they now are. Learn to do fully fifty per cent. more work with the same labor than is now done, and with more ease; learn to apply your labor to greater advantage than is now done; do all this, and more too which can be done, and you will find your products ample, without any increase of population. I am for non-action by Georgia—non-action of our people. Leave the subject of immigration to time and the free will of those who wish to come among us and be of us.

We owe our prosperity at this time entirely to the scarcity of labor—many negroes having refused to work; others being employed in repairing torn-up railroads and building new roads. If all the negroes had gone to work on the farms, and done full work, it would have taken twenty years to reach our present situation. The scarcity of labor is the only blessing we now enjoy as a result of the war.

The scarcity of labor in the South gives us the proceeds of the very labor some people wish to transfer here. The profits of one hand in the cotton field give us the labor of two in Europe. Transfer him here; and he will compete with the labor we now have, or he will labor with those we now have, to lessen their profits, and bring about a state of things which will get up strikes. You must recollect, a strike in the cotton or harvest field is not like one in a cotton mill or on a railroad. If the mill stops, what has been done is not lost; if the hands refuse to move any more dirt, what has been, remains. Not so with wheat and cotton; all is lost, unless you continue to advance. The guano must be pumped up into the cotton bolls, and they must be gathered by uninterrupted labor.

The press of the South has labored earnestly to get the cotton planter to make all his supplies at home, urging it as being the cheapest policy. Now every cotton planter knows that nothing pays as well as cotton, and all the presses in the world can not change his opinion. But if the press will strike at the root of the evil, they may do incalculable good. I will state what it is; I have always practiced it; both the true interest of the cotton planter and patriotism should make all adopt it. Apply one-half of all labor and land to the making of full supplies of all kinds that are needed on the plantation, and enough to spare for those engaged in other pursuits. Do this, and you will get more money (take ten years together) for the other half of labor and land engaged in cotton culture than if the whole was employed to produce cotton. If this is true, immigration is certainly not to our interest, and why should not the cotton planters consult their interest as well as other people.

Very respectfully,
DAVID DICKSON.

IMMIGRATION—NUMBER II.

SPARTA, GA., October 7, 1869.

EDITOR SOUTHERN CULTIVATOR:

I could not finish what I had to say on immigration in my first article. I will not reply to any criticism on my views hereafter, as I have no interest to serve that is not common to every planter, to-wit: the prosperity of the South. I have never held any office, and do not wish to do so. I speak and write simply what I believe is the true interest of the cotton planter, without regard to pleasing or displeasing.

I will use round numbers; these will be near enough for all purposes. It has been about ninety years since the close of the Revolutionary War. The population then was estimated at about three millions; to this original number a few have been added since, by purchase of territory and annexation, but not enough to alter the results materially. During these ninety years, we have been engaged in wars (including the Indian wars) as much as one-sixth of the time, and what is the result? The population of the United States has increased thirteen-fold, reaching now, probably, thirty-nine millions. Taking the ninety years together, there has been an increase of population equal to the original number, once in about every seven years, including the limited immigration. Who can want a greater increase of population than that? And as long as there is sufficient room to produce all the necessaries of life, the increase will keep up to these figures. Is there any one that wishes to encourage a system that would stint the food of their own children so as to stop the natural increase of a well provided population? Taking thirty-nine millions as the number of persons in the United States at present, let us see what they will be in ninety years more, or in 1959 (and some who are children now will be alive then): thirteen times thirty-nine millions makes five hundred and seven millions of persons.

Messrs. Editors, we will now try the figures in the case of Georgia, and what is true of Georgia is true of all the Cotton States. The population of Georgia is now about one million two hundred thousand; thirteen times that amount is fifteen millions six hundred thousand. Now, is there anything that will prevent the ratio of increase for the next ninety years being equal to the past ninety years, but a scarcity of food, and clothing, and room? It is often said that the South is the garden spot of the world. Heretofore we had permanent and limited labor, and the cotton plant, together with an extensive forest before us. All is changed now; the best of the forest is gone and it requires a greater number of acres in the South to support its people than in regions farther North. It is much more difficult to retain the soil and improve it. Here the land is not frozen and covered with snow six months in the year; the summers are much hotter and longer; heat hastens exhaustion when under the plough; and the heavy rains damage the land the year round; therefore, we need more land that we may rotate the crops and give the soil rest. Labor is chiefly valuable, not on account of the aggregate of what it produces, but the money value after paying for labor and all expenses. The amount of labor that will produce the greatest net profit is what I want. I contend we now have it in the Cotton States. The laborer and his family have to be first fed and clothed, no matter what the price agreed on for labor, before capital gets anything.

It is said we want more labor. Can we get more laborers without at the same time getting more consumers? Or is it meant we want more persons without capital? If so, I am opposed to that plan. I had rather have less labor, and have a majority of the people interested in property, morals, true religion, and everything that is desirable. A large population has a tendency to develop a central government and a standing army. I will leave it to some divine to say what effect the introduction of Chinamen would have on religion, morals, etc.

Had it not been for the clause prohibiting slavery, which Virginia put in the articles ceding the Northwest territory, and the immigration of Europeans, we would not have had the late war and its results; and even if the war had come, there would have been no "lost cause." Immigration is the chief cause of the changed character of the government of the United States, and a continuance of the former will hasten the overthrow of the latter, with all its attendant consequences.

Cotton planters! the whole capital of Europe, including money and machinery, together with that of the North, is striving to increase the quantity of cotton, and to reduce the price. You have no concert of action; a panic increases your anxiety to sell cotton. This feeds the panic still more. Your only remedy is to make only what is wanted at paying prices; keep out of debt, be the creditors, make the most of your supplies at home—then, and only then, will you have power.

Messrs. Editors, there is a great deal said about the capital the immigrants bring to this country. I do not think they bring any, except enough to exchange during the first year's residence for articles that would be exported during that year, if not consumed by the immigrants, such as bacon, cheese, corn, flour, lard, etc. The gold returns to Europe, in place of the above articles, to pay for their clothing, etc.

A country being rich is a very different thing from a population being rich. Suppose Georgia had five hundred millions of taxable property, and one million of inhabitants, and you add two hundred millions taxable property and one million of population, the people would be poorer than at first. Population does not lessen taxes. Thirty years ago, with one-half of the present population, we did not pay more than one-tenth of the present tax. Under the Adams' extravagant administration, a tax of about two dollars and fifty cents per head, with a population of five millions, was paid. Under Mr. Johnson's administration, with an average population of thirty-five millions, nearly five hundred millions were paid to the government, or sixteen dollars per head. Let each reader figure for himself and make up his mind accordingly.

One of the benefits of scarcity of labor is, it gives high prices for cotton, and thereby gives us a monopoly of all commercial manures; and only one-half the land being required to produce the same amount of cotton; deeper ploughing can be done—this will hold moisture, to keep the manure soluble, and make the insoluble soluble. More care in cultivation follows; the best and most level lands will be selected; the worn and gullied lands will go into forest again to equalize the seasons as to cold and hot, wet and dry. The very scarcity of labor will enable planters to acquire a cash capital, and with that, if they are true, they can dictate terms. I feel no apprehension that the negro will or can force the planter to sell his land.

I do not believe that the increase of price of grain in the great Northwest is due to the hundreds of thousands of immigrants annually settling there. If it was true, I would not want such immigrants; they could not make bread for their own consumption. It must be found in other causes, as depreciation of the currency, conversion of grain into meat for cities, for export, and the gradual impoverishment of land.

I take issue again on the amount of labor that can be spared from a dense population, compared with a sparse one. European experience shows that only about one man out of each hundred of the population can be spared without creating a scarcity of the necessaries of life. The United States, taking both sections, furnish from six to eight to the hundred. If the South, previous to the war, had taken the native white man and negro to build her railroads, instead of employing immigrants, cotton would have advanced to such an extent as would have twice paid for the whole work, thus getting the roads for nothing, and still have enough to pay for all iron, etc. Georgia, for the last four years, has repaired and made more miles of new roads, built more factories, shops, houses, etc., (all with Georgians) than any one million two hundred thousand people ever did since the creation of the world, and in this lies the secret of our success.

I will only touch upon one more item, viz: low rate of interest. Dense population has a tendency to center property in a few hands—property in the hands of a few has a tendency to lower the interest, because the few do not consume the whole interest; if more generally diffused, all would be consumed. Low interest at home causes capital to seek investments where interest is high. For instance, Europe purchases bonds here that pay five to seven per cent. interest to be reinvested year after year, still making money center to the lowest point of interest, and rendering it more difficult for those to live who have no money. This country, in less than ten years, will pay a tribute in interest to Europe of more than one hundred millions of dollars on bonds having been principally consumed in luxuries.

I am no apologist for the negro. I would be glad for him to feel the stimulating effects of immigration, if it could be done without injuring the white race.

I shall now take final leave of this question, commending it to the calm and thoughtful consideration of the thousands of planters at the South who have as deep an interest in it as I have. My object has not been to provoke controversy, but to caution my fellow-countrymen against a policy which, in my humble judgment, is fraught with ruin to the South.

Yours truly,

DAVID DICKSON.

IMMIGRATION—NUMBER III.

SPARTA, GA., March 31, 1870.

EDITOR SOUTHERN CULTIVATOR:

DEAR SIR: You wish to have my further views on the policy of immigration to the Cotton States. I should have answered sooner; but every time I set apart a few hours for that purpose, I have been interrupted by company.

The great cry of the friends of immigration is to develop the resources of the Cotton States. That might do if it did not increase the recipients as well as products. I entirely disagree with them. The people of the Cotton States own the soil, mines, water-power, etc., and I contend that we have the labor to develop these resources more effectually than if we had more and receive all the profits. It is our first duty to provide for our own household, and take care of our own poor. We can do it more effectually, and with greater profits to ourselves, than we could with an increase of labor. Under our present sparse population, there is plenty of land and room for all, and abundant employment for our children. This will not be the case when once our country becomes flooded with immigrants. Our own children may even want that daily employment necessary to earn them a scanty subsistence and may not be encouraged and stimulated, as they now are, by all those incentives to action that spring from remunerative labor, as well as from the innumerable openings for enterprise now presenting themselves in our Southern States.

One writer, who objects to my views, asks, "Who built the railroads of the South?" and answers, "Immigrant labor built them." That is too true; but it was a great evil and loss to the South. Under the old system, we had too much labor. It reduced what we had to export to too low a figure. Sugar five to eight cents, cotton seven to ten cents! Instead of building our railroads with immigrant labor, we should have done it with our slaves, to the extent of one-fourth of all labor employed in producing cotton, rice, sugar, and tobacco. Who will say that if one-fourth of the labor had been employed in building railroads, factory dams, fish dams, ditching, improving homesteads, planting orchards, etc, we would not have made fifty per cent. more clear money than we did with all the labor? The fifty per cent. clear money would have purchased all the railroad iron, cotton machinery, etc. Under that system, we might have spun and woven one-half of the cotton, and had as many roads as we wanted—all of which would have been clear profit, getting as much money, all the time, for three-fourths of the cotton as we would for the whole. These are no new ideas of mine. They were formed and expressed early in my cotton career. The first full cotton crop that I ever made (1847), I held my cotton eleven months, and sold the entire crop at four and a half cents per pound. Now, if not more than one-fourth a general crop had been made that year, or three-fourths had been burned after it had been made, the balance would, in all probability, have brought ten to fifteen cents. Would it not have been better to have taken cotton hands instead of immigrants to build those railroads, and saved the money, by increase of prices, to pay them, instead of paying the immigrants out of low-priced cotton?

When you get immigrants, you get competitors for the labor we have, as well as their own labor.

In a former article on this subject, I showed that a sparse population could be governed more cheaply than a dense population; that there were less forgeries, less robberies, and less of all the vices of the day. If you get immigrants, you get all the isms known in the world. If you wish a standing army, encourage immigration. All dense populations require a standing army to preserve peace and to protect life and liberty. Public liberty is near enough gone now; but a dense population would preclude all possibility of its ever returning. Reflect on history and the present population of the world. Look to China, for instance. If people can live cheaper and better in a dense population, why do they leave a dense population and their homes to go thousands of miles to find a sparse population? It is because plenty of land and room insures plenty of all that is needed.

I see it stated, since the war with the American Colonies, that England has lost, by emigration, six million five hundred thousand persons; yet she has, to-day, more than four times the agricultural products that she had then. The loss of the surplus population gave the balance room to work and accumulate. How was this done? By improving the soil with manures; doubling it by going down twice as deep; making it produce four times as much; putting one portion of the savings in improved implements of farming, and another portion in manufacturing. Now, this is the kind of a labor I want. It produces dividends, and the owners get them.

Two tons of good guano will produce more cotton than an immigrant would, even if he belonged to you, like the guano. Both pay in their own cost. This is the only evil in guano; likely to cause an over-production; but in the case of guano, you only have to cease buying it. You haven't it to take care of. The immigrant you must work and feed. In the case of machinery, all you have to do is to cease to apply the water and steam until the surplus is consumed. Give me guano and machinery forever, instead of immigrants. I contend we can get more of both without immigrants than with them.

Cotton from twenty to twenty-five cents per pound leaves a large amount each year, to invest in machinery and guano, if we will. Immigrants, and cotton at eight to twelve cents, will leave nothing. Since the war, I have paid about ten cents per pound for labor alone to produce cotton. Say cotton has averaged twenty-four cents; one-third is eight cents, and the use of houses, wood, teams, etc., are equivalent to two cents more—making ten cents per pound. Some give more. It makes no difference what terms you agree upon with labor, you have to feed and clothe the laborer and his family. Suppose you had double the number of laborers, and you employ them at the lowest wages, feed and clothe them and their families, and sell your cotton crop at ante-war prices, where would be your profits?

Again, scarcity of labor and high prices for cotton give us a monopoly of the guano market. Guano, applied to crops, at the rate of from eight to twelve dollars per acre, will more than double the crops—producing more than the labor, land, stock and machinery, and the cost of the guano not much above the loss in machinery, mule feed and tools, to say nothing about the expenses of the labor. Then, think of the difference! By doubling the number of laborers, without guano, you would exhaust and ruin the soil. Guano, to produce the same amount, will improve the soil in more ways than one. Whoever uses guano will break his land deeper and prepare it more thoroughly.

As I claim to be the first who introduced guano in the Cotton States, I will caution you against over-production of cotton. Use guano and leave off immigrants. Produce about two million five hundred thousand bales only, till prices above twenty cents per pound stimulate a farther increase. Prepare for a panic by constant investments in stock, securities and machinery, even if not more than one hundred dollars annually. It will be a beginning. Keep at least six months' cash on hand for necessaries, that you may not have to force cotton sales. Should a cotton panic occur now, or after this, it would produce, in many cases, starvation. Make all your supplies, and the balance of your labor in cotton will bring more money than all would. Every man believes this, yet some say, "give us immigrants." If you want to change a wrong principle permanently, strike at the evil in truth. All the writers say, "make your supplies at home, and thereby keep your money at home." I must admit, I can not see it in that light. How can money be kept at home, and what good would it do if kept there? Money is only valuable as the cheapest and most convenient medium of exchange. These are my views. The cotton plant is a great power for good, and a rich legacy for us. How to make the most of it should be serious study and action of all. This is the remedy: Do not let it come below twenty cents, and, if possible.

keep it up to twenty-five cents. I do not think it to our interest to carry it beyond that price. How is this to be done? Make all your supplies at home, and you will get the same amount of money for the balance of the labor that you would get for the whole, devoted to cotton. You would have less use for money and more to put in machinery; and having more resources, you would suffer less in any panic.

Money will go where it can buy most, and center where it is worth the least rate of interest. A man having money in Europe, where it is worth only three per cent., will come here for securities at five and six per cent. Continued for years, it centers all dividends to that point on securities.

Some complain that labor is scarce, and a few get all; but they are better off under a scarce system than they would be under an abundant supply. This labor would be worth double; whereas, if there was an abundance of labor, it would produce cheap exports. In this case, none but large and skillful capitalists could work and feed the labor, and it would be the means of centering capital in a few hands. A man of capital and skill could work labor at a profit, when a small capital and less skill would lose money. What now prevents the land from getting into a few hands but the fear and uncertainty of getting labor?

I will venture my advice: Hold on to your land; plough deep; manure; rest; improve your homes; make your supplies; save money to invest; and finally, when called from the world, leave your land to your children, that it may support them and their children, as it did you! The cotton plant is a power that, if used right, will in a short time give us all the capital we wish and make us the creditors of the world! Let us strive to be the creditors. It is a much preferable situation to being the debtors. Beware of foreign capital. It will only displace your own, and be a growth that will ever keep you in the background.

Very truly,

DAVID DICKSON.

THE KIND OF IMMIGRANTS WE NEED.

CHAPTER XIII.

BEST EXTRACTS FROM THE WRITINGS OF DICKSON.

1. Never let it be said by posterity, that it is harder for them to live because you lived before them.

2. An over-estimate as to the practical importance of deep and thorough breaking of lands for the cultivated crops can not be made.

3. I always consider preparation the half, and the heaviest half, of making the crop.

4. I consider it just as deleterious to cut the roots of a plant as I would to cut the veins of an ox when I have him fattening.

5. The product of the crop will be found to be in the ratio of the fertility of the soil.

6. Patriotism says, "make your meat and bread at home and be independent."

7. I have made money by giving my land one year in four to gather ammonia and humus.

Ammonia is the foundation of English agriculture.

With a little ammonia we can gather large amounts every year, and put it at compound interest.

8. I believe in natural laws. Study nature; trace all things from cause to effect, and effect to cause.

9. There are just as many ways to improve land as there are to waste it.

Nature helps to waste, and helps to return.

10. Providence intended the earth to improve in fertility as it increases in population.

11. The richer you make land the more you can draw from the atmosphere annually.

12. If the guano comes in contact with the seed you will have a bad stand.

13. Annual manures are preferable; they ought to double the investment.

Soluble bone and Peruvian guano will square up accounts with one hundred per cent. profit.

14. All vegetable matter placed on your fields will, in due time, turn to cotton and corn.

15. Handle manure as little as possible; but handle a great deal of it. Manure loses every time it is turned over and piled.

16. Of all manures, ammonia is the cheapest and best crop grower, and does not exhaust the lands.

17. The best time to break land for planting corn is ten days before planting; but the rule is, commence in time to break it.

18. Land must be well broken before planting. Commence in time to do it; but the later done—in this latitude—the better for the land.

19. A man only gains hard work and more of it by very early planting.

20. The word stimulate is improperly applied to manures; this effect is owing to its solubility.

21. Be vigilant to save all home-made manures possible.

22. Manipulate your land with vegetable mold.

23. Plough deep, rotate your crops and rest your lands.

24. There is only so much corn and cotton in any manure, and the sooner you get it the better.

25. I have made one bushel of corn to every fifty-two stalks in the field.

26. Turn in the weeds, grass, peas and clover; make the land mellow.

27. Plough deep, cultivate shallow, and you will have no trouble in growing crops.

28. Clay lands will bear the same treatment as sandy lands, and with less difficulty.

29. No matter the color of land, or whether sand or clay, keep up a full supply of vegetable mold; break up deep before planting, cultivate lightly—the result will be good.

30. Four distinct errors keep planters from making good corn crops—

1. Not keeping sufficient mold in the land.
2. Ploughing too shallow in preparing for the crop.
3. Planting too thick.
4. Cultivating too deep.

Keep your land in good heart.

Two hundred pounds dissolved bones will produce all the fertilizing effects of one thousand pounds of bone dust.

31. To manure land with peas, sow the peas the first of July. Drop the peas and guano in every third furrow, as you break the land. If a good crop be made, feed off with stock—otherwise turn under.

32. The true policy is to secure the greatest possible amount of soluble vegetable mold you can accumulate with the least cost.

33. The true system of manuring is to get the manure back the first year, with a living profit.

34. We are only tenants at will, and have no right to use the soil in a way to destroy its capacity to maintain the present population and its future increase.

35. Subsoil one-fourth of your land every year.

36. Use the guano on all lands you plough or cultivate—or everywhere, except in a hole of water or on a rock.

37. Let sandy soils rest to accumulate vegetable mold and fasten the particles of sand together. Rest a clay soil for the opposite purpose of disintegrating the particles of clay.

38. Increase the fertility of the soil in a greater ratio than the population increases.

39. The use of commercial fertilizers gives the farmer the means of making double the quantity of home-made manures.

40. Success is the only test that will do to try a farmer by.

41. Mr. Dickson has made as high as fourteen bales of cotton per hand, besides other produce, stock, etc., to the market value of $1,000 per hand.

42. Manuring will not exhaust land, if you put back each year more than you take from it.

43. Improve agriculture, so that a given quantity of labor may produce double what it now does; double the capacity of the land.

44. With poor land but little manure will be accumulated without the purchase of manures.

45. That land pays best with guano that pays best without it.

46. Drain wet lands; ditch hillsides; then deepen your soil to the extent of your ability.

47. Humus, clay, and a due proportion of sand, constitutes the best of soil to succeed under all circumstances.

48. A cotton plant to stand two weeks' drought must have four inches soil and six inches subsoil; three weeks, six inches soil and same subsoiling; four weeks, eight inches and same subsoiling, and for every week of dry weather, an additional inch, with the same six inches subsoiling.

To stand a ten weeks' drought, break the land sixteen inches, and six inches subsoil.

49. Keep your labor at home.

50. Always come to time.

51. It is hard to transfer knowledge, and harder to transfer art and judgment.

52. The planter should follow the laws that govern the universe.

53. Not only can a living be made on poor land, but large fortunes.

54. By training, hands can do double the amount of work with more ease, and less sweat and muscle.

55. Mr. Dickson's hands used to pick three hundred pounds of cotton per day, and some as high as seven hundred pounds.

56. The planter should mix his own manures, and save the profit of manipulating.

57. Fertilizers bring a crop of bolls on the cotton early.

58. To improve the cotton plant, select seed every

year, after the first picking, up to the middle of October, taking the best stalks and the best bolls on the stalks.

59. In selecting the Dickson cotton, which is the most prolific cotton of the day, select those stalks that send out one or more suckers from the ground, sometimes called arms. Secondly, from those that send limbs thick, with three to six bolls, from a half-inch to one and a half inches apart on the limbs.

60. On all farms there are some acres that produce cotton better than others; seed should always be selected from those spots.

61. I do not approve of hill-planting; nor would I have a row nearer than four feet for cotton.

62. Leave two or three stalks in every hill, the distance of nine inches.

Cotton planted thick in the drill matures and opens earlier.

Cotton requires distance but one way.

63. As manure, I consider ammonia the first, soluble bone the second best, salt and plaster good preventives of rust in cotton, besides possessing good fertilizing properties.

64. To command nitrogen you must have all the necessary salts contained in the various plants.

The more minerals, the more nitrogen you can command.

The more nitrogen you store away in your land, the more you can obtain from the atmosphere.

65. When land begins to tire with excess of lime and other minerals, sow it down in nitrogenous plants, such as peas, clover, etc., and turn them under.

66. I advocate mixing the valuable manures, to grow

perfect plants; but if you use only one, let that be ammonia. It is the cheapest and best crop grower.

67. To be successful in agriculture, you must know where all the elements of plants are, and how to control them.

68. Cultivating with bull-tongue ploughs makes dividends impossible.

69. Do not be afraid of a little clay on top, or subsoiling generally.

One inch of clay each year, over a good soil, will do no harm in any land.

70. If my system of farming is carried out, there is no use to break the ground but once a year.

It requires till the 1st of May to do it right, and that is soon enough to finish.

71. Fill your land with humus, to stick the sand together and to darken it. This will prevent its reflecting the heat, and will cause it to receive it gradually, and part with it the same way.

With clay lands, do the same thing, to make it ploughable at all times.

72. My system, both with hoe and sweep, is to shave off the grass.

73. You can not tell till the seasons pass over when is the best time to plant cotton.

There is nothing made but hard work by planting summer crops in the winter.

74. From te 10th to the 20th of April is the best time to plant cotton; but if you can not plant sooner, plant in May.

75. In 1868 I planted a twenty-acre lot, finishing the

fifth day of May; used eight hundred pounds of my compound per acre. It made thirty-two bales. The lint paid a net dividend on one thousand dollars or more per acre, after paying all expenses, and improving the capital ten per cent. on what it would sell for. Including the sale of the seed, it paid a dividend on four thousand dollars per acre.

76. I have no doubt that, on good cotton land a fair year, I could make one hundred bales cotton, with one No. 1 mule; commencing operations the 1st day of December; subsoil every acre; use twenty-five dollars worth of manure per acre, and finish the 1st of May; cultivate sixty acres.

77. Accumulate all manner of labor-saving machines; improve your land to a capacity double its present rates; learn to do fifty per cent. more work with the same labor; learn to apply your labor to greater advantage, and you will find your products ample without any increase of population.

78. Apply one-half of all labor and land to the making of full supplies of all kinds that are needed on the plantation, and enough to spare for those engaged in other pursuits, and you will get more money than if the whole was employed in making cotton.

79. Leave no grass to bunch and cause a future bad stand.

80. Plough cotton every three weeks, and let the hoes come ten days behind, cleaning it perfectly.

Continue ploughing cotton till the 15th or 20 of August.

Once or twice during the season shove out the middle with one furrow, to keep the land level.

The ploughing of cotton requires one and a fourth days per acre.

81. All land has its capacity, with or without manure —greater when manured and prepared deep, to sustain a certain number of plants.

82. Cotton plants commence when small to take on and mature bolls, and continue until they exhaust the soluble matter, or reach the full capacity of the land. Two stalks will do that much sooner than one, and will so avoid the late drought, caterpillar, etc.

83. Eighty bolls of well-cultivated and matured cotton will make a pound.

In four-feet rows, there will be eight stalks per yard and ten bolls on each stalk will make three thousand six hundred and seventy-five pounds, or two bales per acre.

84. The vegetable mold must be kept up to a good standard, approaching virgin soil.

Cotton will grow after cotton a number of years in succession, with plenty of manure.

85. Rust is nothing but poverty, caused by the land being too porous, springy, sandy, not regularly worked, or want of vegetable mold, potash, etc.

The remedy is—drain the surplus water off, close the particles of sand or clay with vegetable mold, and the use of the "Dickson Compound," with the addition of potash in some form.

86. I find where salt and plaster were used, the cotton has stood the drought best, and has less rust.

87. Make just the amount of cotton wanted, at paying prices, keep out of debt, be the creditors, make the most

of your supplies at home; then, and only then, will you have power.

88. Make the corn for the sake of the corn; but when the corn is made and hard, and the fodder still green and good, pull it off—it will not hurt the corn.

89. In breaking land, commence at the foot of the hill, and circle round on a level, and finish on top.

All litter will be put out of the way, and the grass seed covered so deep that they can not come up.

90. Any land will make corn, if ploughed and cultivated right.

91. For cotton, use from four hundred pounds to eight hundred pounds of the compound per acre. The more used up to eight hundred pounds, the greater will be the profit.

92. With fifty-six hands, Mr. Dickson made and gathered in 1859, six hundred and sixty-seven bales cotton—over twelve bales per hand, besides one hundred dollars worth per hand of corn, bacon, etc., making fifty-five thousand dollars.

93. Mr. Dickson once bought a plantation in Washington county, with the negroes, stock and everything complete, and paid for the whole with one crop.

94. Experience has shown that land when cultivated in cotton after rest, will produce a healthier weed, and will retain water better to keep the guano soluble.

95. The reason that I prefer rest succeed small grain is because the land is then smooth, not open furrows to wash, and it is covered with stubble and small grass to protect it.

96. Rotation of crops, deep and deeper ploughing every

year, incorporation of vegetable mold returning the whole proceeds of the cotton plant except the lint to the soil, making as much manure as possible—comprise my system of improving lands.

97. Large ears of corn are more easily gathered than small ones, and the same is true of perfect bolls of cotton.

98. Compost manure should be spread on the ground, and applied immediately, so that the decomposition shall take place exactly where it is wanted.

99. In manure, as in all other things, the great consideration is to economize labor; and one of the great objects of using commercial manures is, that it gives you the the means of increasing your compost.

100. Almost all flesh and oil are obtained from the atmosphere.

101. From every source, let as much atmosphere into the land as possible.

102. In fifteen years, Mr. Dickson doubled his capital twenty times by planting.

103. The three great cardinal points in the Dickson system of farming are—deep preparation, thorough manuring, and surface culture.

104. To be successful in planting, you must study the habits of plants, their wants and soil adapted to them.

105. The higher the latitude, the thicker corn may be planted; but even then it may be over-seeded.

106. The great object of study and practice is to know how to vitalize the atmosphere, and to work up the manures into the soil.

107. There is no such thing as failure, when man does his duty in the cultivation.

108. During the cultivation, the rain on the land settles the soil to the roots of the plants and enables them more completely to draw all the soluble matter out of the soil.

109. Where the soil does not reach more than from four to ten inches, I prefer the common long scooter of four to five inches width to subsoil with, because it mixes a portion of the soil every year with the subsoil.

110. Breaking must be commenced in time to do it full and well by planting time; and the better the breaking is done, the easier the land is cultivated and the larger the crops.

111. One of the objects of cultivation is to keep the surface broken, so as to let in light, heat and air.

112. One reason why we should have a large extent of soil, and depth of pulverization, is because the roots are many times longer than the limbs or stalks, sometimes five or six times their length.

113. All the labor required to cultivate corn is less than one day per acre.

114. Corn manured and cultivated on my plan will be fully matured before the fodder begins to damage, and there will be no loss of corn from pulling the blades.

115. How to preserve corn. By proper preparation, maturing and cultivation, the ears will be sound and heavy. No other corn can be kept long. Use the yellow flint variety. Let it thoroughly cure in the field. Pull it when dry, about the last of November. Put it up in the shuck, in a dark tight house and fill the house full.

116. The earlier cotton is planted, the lighter it must be covered.

117. In cultivating cotton never stop your ploughs for dry weather.

118. The hoeing and ploughing of cotton during the cultivation of the crop closes up the land sufficiently to cause the fruit to set finely.

119. By placing the stalks thick in the drill, and wide apart, the land is less shaded and gets more light and sun.

120. When I make a good crop, I always admit a little trash in picking—trashy cotton selling better than the blue cotton.

121. In picking cotton, make but one lick at a boll. Pick the odd seeds left in the winding up of the season, if you have time.

122. Teach your laborers how to work; how to do it with ease and efficiency; and to do better and better work every day.

123. Save a portion of your income every year, and buy everything for cash.

124. Keep a cash capital equal to one year's expenses.

125. Make all supplies at home that can be made.

126. The cotton planter should make his whole supplies—everything necessary to run the farm.

127. We want system of saving and properly investing each year.

128. The three great essentials are: First, the theory or true plan of farming; second the art of controlling labor; third, last and best, success depends on quick perception wise judgment, that seldom or never errs. How is this to be acquired, except by the use of books, in conjunction with practice?

129. The laborer must have confidence in the man that

directs. You must not only be superior to your laborers, but so far ahead of them that they shall know that your plans are wise, easy to put in practice, and certain of success.

130. Always come to time, and keep a little ahead. Do the winter work in the winter, and the spring work in the spring, and do it well. Cultivate a little ahead of time; gather as soon as crops are ready.

131. As the dividends on stocks constitute the true test of their value, so the crops and clear profits are the true test of any system of farming.

132. Some men are born generals, some mechanics, some orators, some farmers; but the great mass of men have to read, study and practice to become efficient in any calling they may select.

133. The term "chopping cotton" should be expunged from the farmer's vocabulary.

Cotton should be thinned by shaving out across the drill—not dug out by chopping.

134. Nature is exact and puts forth no superfluous roots to growing plants! Hence every root should be spared.

135. It is not my design to underrate superphosphates, but all to show that ammonia is the cheapest and best of all manures.

JAMES M. SMITH.

A Short Biographical Sketch

OF

JAMES M. SMITH

GEORGIA'S MILLIONAIRE FARMER

Written by G. F. HUNNICUTT, Editor The Southern Cultivator.

CHAPTER I.

INTRODUCTORY REMARKS.

Ambition is one of the strongest impulses that fires a human soul to desire higher attainment—that ever strengthens or expands the human mind in search for new ideas and more facts to enable it to accomplish its plans—or that nerves the hand and makes it more skillful in plying its trade that it may excel others. Ambition has been for ages the great force that has impelled onward to higher achievement our warriors, our statesmen and professional men. And all our histories have been written that they might be read by rising generations and kindle in them the plans of ambition through learning of the deeds of renown achieved by the great men of former days. The farmers, as a class, have lacked this great stimulus. But should we not profit by this method, and hold up to our children the lives and achievements of the few among us who have won such eminent success in our calling? Certainly we would be very unwise to further neglect so great an incentive to better efforts on the part of our young farmers. Our older farmers can and should increase their fund of knowledge from this source; and our younger ones need to kindle the flame of ambition in their breasts from these altars. It is true that strong ambition is born in many, and will push them forward to a high degree of success by the very strength of its innate force. These are few and far between, and the great majority must depend upon increasing the small spark that is given and fan it into a flame by reading of the lives and work of the great men who have gone before. That our Southern farmers may have better opportunity to receive the benefit of such aid—is one of the purposes of this sketch. The other purpose is that THE CULTIVATOR PUBLISHING COMPANY proposes to get out a series of books that will give our Southern farmers a literature of their own; so that they may know the steps whereby they have advanced and something of the leading successful farmers who have been the most potent factors in the agricultural development of the South.

It is very well for us to have a literature written by experts and college men. It is all right for us to have government literature of a technical nature for our information. But it is far more essential that we treasure the life history of those who have embodied the most successful features of farming in their practical daily work, men who have done the actual deed, who have exemplified what can be done out in the fields. These are living examples and are of greater practical value than any expert testimony. And a Napoleon of farmers is James M. Smith.

The world is all agog with the wonderful achievements of such men as Rockefeller and Morgan, and they have done wonders in amassing fortunes; but they operate from the center of our financial system where a thousand avenues open up for investment and for manipulations which annually increase their gains. Not a single one of these multimillionaires has accomplished more than Mr. Smith, when you come to consider the environment in which he labored, and the barrenness of his opportunities for money making. Think of starting 40 years ago with $400 and increasing to more than a million, out on the farm—17 miles from town, on the poor red hills of Georgia, for years growing 6 cent cotton and always struggling with ignorant negroes and trifling whites. No man could have done this who was not specially endowed with ambition and with brains, and the truth is Mr. Smith has more natural brain force than any man we have ever seen. Then his capacity for organization of unorganizable material is something wonderful. We do not know any man who is as little understood or who has been as much maligned. In giving this sketch I am not going to indulge in generalities or in superlatives. I am going to tell the truth plain and simple, so that any one can understand, and if he is touchable, so that he will receive benefit from its perusal. I gathered this material first hand, and no hearsay matter is given. In starting out to make a success of farming a man should seek to get every available influence that will help him, and the farmer who neglects or refuses the benefit he can get from the great successful career of Mr. Smith certainly acts unwisely and loses a potent factor in his life's work.

It was our intention to secure a series of articles written by Mr. Smith himself, and to publish these in "The Cultivator" and afterwards to combine them in book form; but he has become so engrossed in business and his affairs have become so extensive that all his time is consumed. We trust he may wind up his farm operations and be able to give us some of the promised articles in the future. This short sketch that I am writing is written for a specific purpose, viz.:—to tell something of Mr. Smith's success, but more especially to show the reasons for his great success.

Chapter II.

SOMETHING OF HIS HISTORY AND START IN LIFE.

James M. Smith was born in Wilkes county, Georgia, September 18th, 1840. He received his common school education in his native county, and later attended the Hiawassee College, in Monroe county, Tennessee, where he graduated. After finishing college he taught school for a year or two and then decided to engage in farming. It was in the year 1866 when he first began to farm, and he located at Smithonia, in Oglethorpe county, Georgia, where he now resides. He commenced with a capital not exceeding $400.00, and this included his stock, having bought his land on credit. 1886 was an unfavorable crop year, it rained continually from spring until fall, and no great yields could be made; so that instead of making something clear, he lost about $500.00. To use his own words he said: "Having lost everything I had, and the debt on my land becoming due, I was in a very awkward predicament, and I did not know exactly what to do. But I secured two clever men to go my security and borrowed $2,500. After paying the $1,600 due on the land, I had $900 to go on with the next year. In 1867 I made a better crop, but cotton went down to 11 cents in the fall when I had to sell, although it went back to 34 cents the following March. Having farmed two years without making any money; and the labor I had with me not doing the class of work that I knew should be done to secure the best results I resolved on a change. I had five tenants or croppers on the place, and they had each been following pretty much his own plan of farming, which of course was not up to a very high standard, so I concluded that from now on I was going to be boss, and carry out my own ideas about farming. So Christmas I called them up and told them my conclusions, and said, 'If you wish to stay you can do so, or you can leave. If you remain, you must be guided by my judgment in conducting your farming for the ensuing year, since from now on things are going as I say, on this place.' Two stayed and three left. I supplied their places and we went to work. In 1868 I made a better crop and got better prices for it, so I made some money, and in 1869 I made a little more money. In the meantime I had been clearing more land and getting things in better shape, so in 1870, having gotten more hands and having bought more land, I made a good crop, making 210 bales of cotton and everything that I needed to run my farm, and all this without using a pound of fertilizer. So, above all expenses, I cleared $10,000. This was the beginning of my success. Then I began to lay bigger plans. My ambition expanded. Up to this time I had fully intended to go West. I desired to go to Texas, and a friend of mine who had gone out there and succeeded, offered to give me 2,000 acres of land on the Brazos River if I would come out. I would have gone but for the fact that I had gotten in debt and kept buying more land and keeping in debt, until I did not feel as if I could leave without fully discharging my obligations. So you see, I never made any plans to carry out my present extensive operations, although I always had plenty of energy and was ambitious to carry out successfully anything I undertook; so my achievements have been a process of development and not the carrying out of a preconceived plan. In other words, I have grown with my business, and it is about the only way one can keep things well in hand."

One thing called for another, and Mr. Smith began the development of the great estate which he was gradually acquiring.

CHAPTER III.

WHAT HE HAS ACCUMULATED AND THE ANNUAL CROPS PRODUCED.

I can not undertake to go from year to year and give every detail as to Mr. Smith's progress, but I will now give you a review of what he made and has around him. Naturally he soon had to have a gin, then a mill, saw mill, a blacksmith shop and a store. As his operations extended, he felt the need of an oil mill and a guano factory. Being off some distance from the railroad, he built a railroad of his own to Dunlap, seven miles in length, to tap the Georgia Railroad at this point, so as to reduce the amount of hauling necessary to be done. Having started, and the Seaboard Air Line coming near his place, he extended the road to Colbert, five miles distant, making in all twelve miles of railroad of his own. Clearing up large new-grounds, and having need for so much wood for his engines and hands, he had a three-mile spur that he used to run out to these clearings to haul the wood; and often he used this road to haul in his crops. For instance, one year he sowed 800 acres in wheat in one field and threshed over 12,000 bushels. It would have been quite an item to have hauled this three miles in wagons, especially when mules were needed in the crop. So he hauled it in box cars—thus dispensing with need of so many sacks. Often he would take his hoe hands to and from the field on his train. Another year he planted this 800 in corn and made 16,000 bushels and hauled it all home in the cars, not having to haul more than a half to a mile in the wagons to load it.

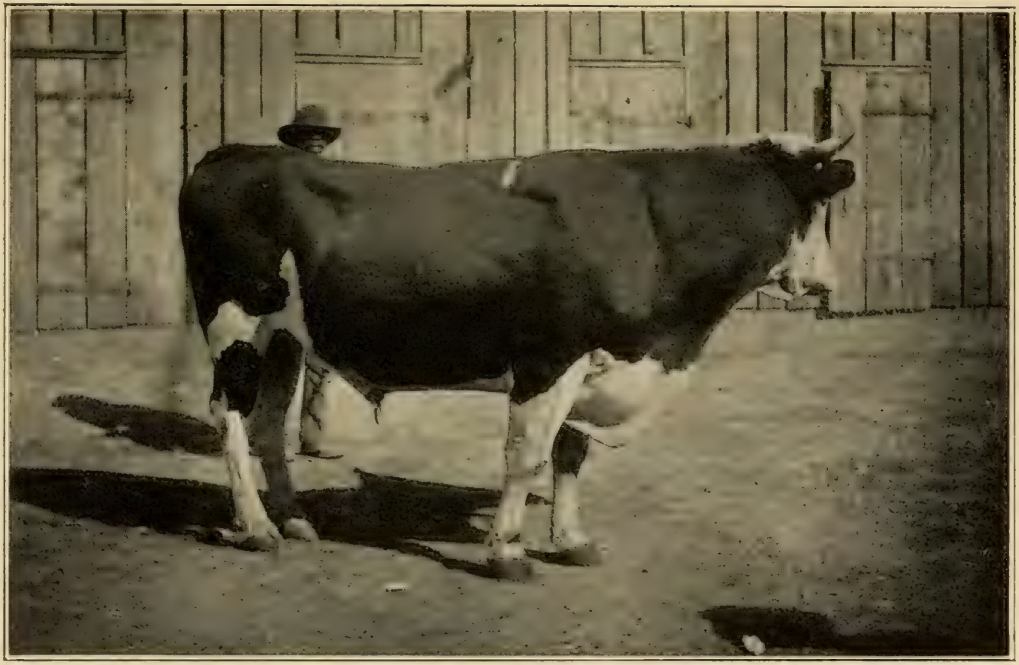
GINNERY ON FARM OF JAMES M. SMITH.

One year he had a ten-horse farm down at Dunlap that he had no tenants on, so he had to cultivate it from home, with his wages hands. He would put his mules in a stock car and the hands in a box car and carry them to and from their work. He was not contented to manufacture fertilizers for his farm alone, but began to sell in the surrounding counties, until his fertilizer output annually reaches a total of 3,000 tons.

He kept buying all the lands adjoining him until he owned 25,000 acres. He ran for years as many as 400 plows, and his crop production was as follows: 4,000 bales of cotton, one year going to 4,100; 30,000 bushels of corn; 15,000 bushels of wheat, and 20,000 bushels of oats. He had 700 head of cattle. Milked as high as 200 cows and sold as much as 25,000 pounds of butter in a year. He killed as many as 300 head of hogs, that averaged 250 pounds net of pork each. While making such crops he cleared large amounts of money, and soon became an extensive money-lender as well as farmer. Here his sound business judgment served him equally as well as in his farm operations; so his fortune grew rapidly. Mr. Smith stayed at home and attended strictly to his business. If you wanted to see him you could go to his home with the certainty of finding him there. He did not run to town every day; but at the end of each day he had in his mind the full details of the operations upon his place, and could tell just what had been accomplished in each department. Having a wonderful brain and memory, he trained it by continued business application until every detail of his operations was at his command. He had many white men and negro foremen to carry out his instructions; but they made daily—or rather nightly—reports to him. He never rested until all the work of the day had been reviewed and the plans for the next day had been decided upon. He could never have succeeded as he did without a strict system; but this system was peculiarly his own. He was the center from which everything must go and come. He gave instructions what was to be done—and then he received daily reports as to how the work was progressing.

Mr. Smith made his start through farming, and this has constituted his principal source of revenue all his life, still he has made good money out of legitimate side-lines, such as his oil mill and fertilizer factory. He was one of the first men in the South to see the opportunity in these lines of business, and began operating both over twenty years ago, when seed were cheap and there were larger profits in the business than even there are to-day, though they still constitute one of the most profitable lines of business in the South.

I can not say how many hundred thousands of dollars he has made in this manner, or by investments, loans or discounts. But the fact remains that his principle occupation is, and always has been, strictly farming. He has not only lived upon the farm, but has given it his personal supervision from day to day and year to year; and at least three-fourths of his fortune has been made out of the soil and his management in securing profitable crops. It is nothing but business farming to manufacture one's products so as to command the highest possible price—to manufacture fertilizer for his own hands and those of his neighbors—to use his money in all the ways possible so as to produce more and to make the clear profit greater on all that he does produnce. If Mr. Smith had not used such judgment and skill, it would of course have been impossble for him to amass his great fortune. Much of his money was made by investing in land when it was cheap; but this was simply one instance where he exhibited his wisdom. The key to all successful farming lies in the production of good crops, and then the investment of one's profits wisely so they may assist him in making more money: and this Mr. Smith has certainly done.



Mr. Smith Likes Holstein Cattle.

CHAPTER IV.

SOME INSTANCES OF SPECIAL CROPS AND THE PROFITS THEREFROM.

Upon my asking him what were the most profitable crops he had grown, he replied, "I once made 79 bushels of wheat on two acres, and this was when wheat was worth $1.50 per bushel, and then put the land in cotton and made a bale per acre. I have frequently sown rye and gotten two cuttings of green feed and then planted in cotton and made a bale per acre. This was my custom when I kept so many cattle: I would put out the stable manure broadcast in the fall, sow in rye and follow by cotton. Besides making fine crops the land was greatly improved and is very fertile to-day, as you can see. I have made as high as 65 bushels of corn per acre on as much as ten acres and had a 500-acre field to average me 40 bushels of corn per acre. In this field I found some stalks with as high as nine ears on a stalk. It was a very prolific variety. In the cotton line I took an acre and fertilized it highly to see how much I could make on it, and the first year I gathered 820 pounds of lint. The second year I took in a little more land, making the patch 1¼ acres, and made 1,000 pounds of lint, and the third year went up to 1,200 pounds. The fourth year it was very dry and I went back to 900 pounds. The fifth year I made 1,500 pounds and the sixth year I got 1,620 pounds. The seventh year it fell back to 1,200 pounds, the eighth year ran up to 1,950, and in 1908 I made my record yield of 2,047 pounds of lint. Had I continued I believe I could have made five bales on the 1¼ acres or four bales per acre. The best farming that I have ever done, was on a 400-acre field, just above the cattle barns. This field was neglected and run down, so I took a notion to see what I could do with it. I had it properly terraced and ditched, as it was pretty, rolling land, and put some manure first on the poor and gullied spots, then continued until I broadcasted stable manure all over it. When I first started I only made 200 pounds of lint cotton per acre. The next year I went up to 250—then 300, 400 and finally up to 450 pounds per acre. I kept an account with this field and after paying all expenses for fertilizers and labor, I cleared $25 per acre or $10,000 per year for a period of ten years. This would mean $100,000 for ten years, or put out at interest at 8 per cent. would amount to $136,000, and if interest was again loaned or compound you would have the total of $144,865.70. Then, too, the land itself had increased in value. If it was worth ten dollars per acre at the time I started, it is now worth at least $40 per acre."

This would make his net gain of income on this 400 acres run up to $156,865.70, so you can begin to see where he got his vast fortune.

We went out to see this field and we concluded it was worth every cent of the last named figure. We give our readers a cut showing this field, and we think they will agree with us that it is worth the money. Mr. Smith has not been an all-cotton farmer. He has practiced diversification. He has not spent his energies on lot patches; his aim has been to make fair yields and profitable crops on all the land he cultivated. He believed in taking care of the land, in plowing deep, and above all things in working or cultivating the growing crops well. Often an individual cropper would fall short, but generally he would manage to help him out, in case of sickness or any misfortune, so as to make all his hands make profitable crops.

CHAPTER V.

THE KEY TO HIS SUCCESS AND HOW HE MANAGED LABOR.

I asked him to give me the things which insured his success. His answer was, "My success was largely due to three things: First, my energy or industry; second, my ability to manage labor, and third, my judgment in investing wisely. I had another turn of mind. I always observed very closely, and would catch an idea here and one there, and master them, until they became my own. I learned to understand thoroughly what certain work could and would produce. Then I always believed in doing things well. Don't believe in slighting even the laying off of a row or the dropping of corn. I measured accurately the distance of my rows and the space which the corn was dropped. Then I sought to learn what was best to do, at any given time, even down to taking care of the plows and tools. For instance, some things you can put off and some you can not. You can put off plowing your cotton a week, but not your corn when the time comes. Then if you want to make grain, when the time comes to sow it you must do it then, and let other things wait. I have had needed all the intelligence that I possessed or could acquire. I would not have succeeded so well had I not been pretty well educated to start with. You see, a farmer has many elements of uncertainty to contend with. First, there are the uncertain seasons; second, labor; third, the prices he is to get for his products, and fourth, health. So you see a farmer must have intelligence, judgment and tact to turn these elements of uncertainty into a successful issue.

"As to labor, the key to my success in managing it has been, that I always fix *responsibility* upon every individual, white or negro. I tell a man, 'I want you to go and do *this thing* in *this way*—and if it is a success you are entitled to the credit, but if it fails you are subject to censure,' and if this does not bring out the best in a man—then there is no best in him. I never allowed two negroes to plow in the same 'land,' or to plow in the same row—as I wanted to be able to fix this responsibility on one man, if the work was not done properly."

Mr. Smith is a fine judge of human nature. He can come as near seeing through a man as any one living. He has learned how to get hold on negroes and whites: if there is any way to induce them to do good work he could soon learn it. But this much was certain, if they stayed around him, *work they must*. There was no room for drones around his hive. Of course all fortunes must be based upon two things: work and management. Somebody must do the work and a head must do the managing. I will never forget one rainy day in January I went down to see Mr. Smith on some business. When I drove up before the house, some one told me he was down where the hands were clearing a new ground. He had seventy-five axes cutting, twenty-five men splitting up the wood, over twenty negroes hauling the wood out of the way and some fifty women and children were piling brush, picking up trash and burning as they went. Thus ten or more acres a day were cleaned for the plow. But I started to tell you, when Mr. Smith came up I inquired as to his health. He replied he was not well. Then I suggested that a man of his means had no business out in such weather. To this he replied, in his characteristic way, "I'll tell you, it is one of the penalties God Almighty has put upon success—that you give personal attention to your business." He has given personal attention to every detail of his business and he has not considered farming of such a low order as to demand less skill or less ability than other avocations. Mr. Smith has a most wonderful memory. When he owned 400 mules he knew each one by name; and when there were about 1,000 negroes on his place he could call each one by name that was over eight years old and tell you who his parents were. The admiration the negroes had for him was marvelous. They considered it an honor to work for him and to live on his place—that is, those who liked to work. He made it "too hot" for those afraid of work, and the tales told of his severity upon his labor are told by this class.

CHAPTER VI.

CONVICTS NOT ESSENTIAL TO HIS SUCCESS—HIS TREATMENT OF LABOR.

If you speak of Mr. Smith's success, nine times out of ten you will meet with this comment, "Oh, well, he made his fortune by working convicts." Now, I am not writing this sketch as a defense of Mr. Smith, only so far as the truth goes: my aim is to write the facts, and to bring out anything in his achievements that may be helpful to others. So I asked him pointedly these two questions: 1. "Were convicts essential to your success as a farmer?" 2. "Did you make money by using them on the farm or by subleasing them?" And here is his reply:

"No, they were not at all essential to my success. The truth of the matter was, I was making my fortune rapidly before I had any convicts. Then I always had more than ten free laborers to one convict. On the whole, I think convicts were a disadvantage. You see, I could not handle them cheaply on the farm or work them to advantage. The only way they paid me anything was in clearing up land and ditching. They did help me in building my railroad. You see, I seldom kept more than fifty on my farm. Then I had to pay for guards, doctors and for escapes, all extra. As for those I hired out, there was not as much profit as many suppose. I did not get the prices they brought in later years. I sub-leased most of them for $60 per year. In clearing much of my land, I would have been better off if I had not had them at all. The timber on that land now would bring me $100 an acre. So you see they enabled me to rush on to my own injury. The late Capt. L. D. Grant and myself tried to run a large farm in Oconee county with convict labor alone, and although it was one of the finest farms in the State, and although we made fair crops, we actually lost money; and the only way we saved ourselves was, by selling the land at an advanced price."

Personally, I have known several who tried to imitate Mr. Smith in the convict business on the farm, and not one of them made a signal success, and two of them broke outright. So, I do not believe Mr. Smith's success or fortune was in any way dependent upon convicts.

Then there have been many tales told concerning his treatment of free labor. I made special investigations and find from reliable sources that these "reports" are without foundation, only so far as some one did not want to work, and then he made things "hot" for him; as he should have done. He took both white and black labor as they would come. Many had no character and their main desire was to get all they could and to give as little return as possible. To control the class of labor that he had to contend with, he was compelled to have rules and to enforce them. He stood ready always to carry out his part of any contract and who can blame him for insisting on laborers carrying out their part of the contract? His plan was simply business—and this did not suit a great many, of course, and this class could not circulate reports too damaging to Mr. Smith's character and system.

Chapter VII.

THE LESSONS TO BE LEARNED FROM HIS CAREER.

Any fair-minded man should always be ready to receive aid or instructions from any one who can give it. The question you should ask yourself is, Can Mr. Smith teach me anything? Can I learn any helpful lesson from his success? Wherein is his career beneficial to me? When you consider that he started out with only $400 forty years ago, and has made out of his farm operations a fortune exceeding a million and many say two millions—when you consider his ability to control labor—to carry out large plans—to take such unskilled labor and diverse material and by the force of his genius mold them into such a systematic whole and wield it as effectively as has James M. Smith, then there is something radically deficient in the mind which can not learn many profitable lessons from his career.

It is very unfortunate how readily our people decry the rich. How readily they will believe anything circulated derogatory to their character, without any investigations. Men do not succeed by accident. Great success is the result of great plans effectively carried out. We should seek to learn the steps that have led up to the goal. Whether or not you can endorse all that a successful man does, you still should seek to choose out those points that would be helpful to you. Listen to this good advice from Mr. Smith:

"A great mistake the average farmer makes is, he will not learn from the experience of others nor seek advice in time. He waits until he gets in a hole—and then he wants somebody to tell him how to get out. He should have learned to keep out. I have met thousands of men in my time who never knew when they came to 'the fork in the road.' There is always a point where the roads to success and to failure fork. The only wise way is when you come to this 'fork,' if you do not know which road to take do not go any farther until you ask some one who has traveled the road and who knows which prong leads to success and which to failure. A young man should always strive to learn more. The man who increases his fund of knowledge has done a great deal for himself, especially for his future success."

In conclusion, I want to say, Mr. Smith is one of the greatest men the South has produced. Endowed with a masterly brain, a wonderful memory, and a great ambition, he went out in the country—seemingly away from opportunity; but so strong was his individuality that he forced things his way. Instead of going from his farm to "the marts of trade," he brought the marts of trade to his farm. He was the center of the great world which he had created and from him everything went forth and all things must return under his supervision. He never went to sleep, whether it was 2, 3 or 4 o'clock in the morning, until he had received a report from all his foremen as to the work of the day and had given full directions as to the work for to-morrow. His system was peculiarly his own. But great success crowned his efforts because a great brain directed his plans. He has shown that there is not only more in the man than there is in the land—but also more in the man than there is in the occupation. That success lies with the individual and his ability. So to all farmers his career should be an inspiration—an incentive to renewed energy and struggle—and all farmers who desire to succeed should stop at the point "where the road forks" and ask the way and also by what means did James M. Smith travel the road to fortune so successfully.

WASTE ON THE FARM.

BY HON. JAMES M. SMITH.

This subject calls to mind a matter deserving, at the hands of every farmer, serious consideration. The habit of waste on the farm has been in vogue so long it has become with many of us almost second nature. We, whether landlord, tenant, cropper or the man who works for wages on the farm, are all guilty of waste, neglect, carelessness, no thought of to-morrow, want of skill, correct knowledge of our business, and last, though by no means least, idleness.

The subject is most opportune. It will be of great benefit to the farmers to have their attention at this particular time, when everything is so high-priced, called to the great waste which they are permitting to go on constantly from year to year without making the proper effort to stop it. Let each farmer ask himself the question, "How much during the past year has been wasted and lost on my farm for the want of proper attention and care?" If we farmers will heed and mend our ways the saving will be great. I do not think I exaggerate when I state that if the farmers would reduce the waste on the farm to a minimum, the average saving of the average farm would be not less than five per cent., annually, on the value of the entire farm. In many cases it will be more.

No industrial, manufacturing or mercantile business can bear such waste as is usual on the farm without becoming speedily bankrupt. Large streams are formed by many small streams coming together, so many small wastes when summed up and put together show great loss—much greater than many of us imagine. These wastes continuing from year to year cause fortunes to be lost.

Many farmers whose energies and efforts deserve success meet failure while many other farmers with scarcely as much energy and effort, succeed. The former class are careless and permit many leaks and wastes, while the latter class are careful, watchful, painstaking, and permit no waste which can be avoided.

It is an old and wise saying, "Take care of the dimes and the dollars will take care of themselves." Another equally as wise and true saying is, "There is more in saving than in making."

There are so many losses, wastes and leaks on the farm arising from so many different causes that forty chapters could scarcely enumerate half of them.

Neglect and carelessness is one of the causes. We have all read the story of a great battle lost on account of neglect. The story runs:

A courier on the eve of a great battle carrying an important message to a general on one of the armies, stopped on the way to have his horse shod. The blacksmith neglected or failed to drive and clinch only one nail in one shoe. The shoe came off for want of this nail. The horse became lame for the want of this shoe and the horse becoming lame his ability to travel was retarded and the courier failed to deliver the message to the general in time. The general failing to get the message in time lost the battle, and losing the battle changed the destiny of a great nation.

Cæsar on his way to the Forum was handed a sealed letter informing him of a conspiracy to assassinate him that day, which he neglected to open and read. The world is familiar with what followed.

Many crops have been cut off from equally as small neglects. I once hired a negro to herd a large number of cattle. These cattle were grazing in a pasture about the first of July, adjoining a fifty-acre field of corn which bid fair to yield forty bushels to the acre. The corn had just been laid by. The negro went to sleep, the cattle broke out of the pasture and virtually destroyed the whole field of corn. I thus lost two thousand bushels of corn together with the fodder and shucks, all of which were worth $2,000.00. When the negro waked up and found the cattle were in the cornfield he ran away and never made any report, hence it was two or three days before I found out what had occurred. I then hired two other negroes, who for the purpose of designation I will call No. 1 and No. 2. No. 1 agreed to go with the cattle during the day and watch them from the time they were turned out of the pen in the morning until they returned in the evening to be penned for the night. No. 2 agreed to conceal himself from No. 1 and catch him asleep if he could. Every time No. 2 caught No. 1 asleep I agreed to pay No. 2 $2.00 as a reward and charge it to No. 1. I congratulated myself of the cute plan I had adopted. No. 1 would pay for his own sins and No. 2 would be paid for his diligence and faithfulness. The plan I imagined was somewhat automatic. No. 1 was certain to keep awake knowing that if he went to sleep No. 2 would catch him, and he would lose most, if not all of his wages and No. 2 would be on the alert to make $2.00 as often as he could.

Not long after this plan was set on foot the cattle broke out of the pasture and destroyed a neighbors crop which cost me several hundred dollars. When the facts came to light I found that No. 1 and No. 2 had gone into partnership. No. 2 gave No. 1 half of the reward paid to him, and both slept whenever they wished. I paid No. 2 enough for reporting No. 1 to afford both good wages. They both had a good time at my expense. One of these negroes told a neighbor and friend of mine "Dat if Marse Jim wid his jedgment and eddication was sharpe like us niggers he would do well." In my haste like David when he said, "All men are liars," I told both of these negroes they were not adapted to herding cattle, but ought to be lawyers and politicians. If any one will show me where David ever took back what he said, I will apologize to the lawyers and politicians.

I relate these things in order to show how some of the losses on the farm come about, and further to show the difficulties in the way of avoiding these losses.

In old times when the farmers neglected to stop the hog holes in the fence, the hog got into the field and rooted the corn. Now, if the farmer fails to stop the hog hole in the fence, the hog gets out of the pen or pasture and roots up the corn just the same. Whether we have fence law or stock law, the hog hole in the fence must be stopped, or else the corn is liable to be rooted up. The only way to remedy this hog hole in the fence is to stop raising hogs. This we can not well afford to do at the present high price of pork.

This brings to mind the fact that the farmer by diligence, watchfulness and constant attention to his business, can stop many of the wastes. Leaving the gate open and the bars down, his stock getting out in the crop, has caused many a farmer considerable loss. Besides he is sometimes late getting to meeting, and generally owes the church apologies for the hasty remarks which he had made.

If we farmers in the conduct of our business would be punctual and prompt, and allow no opportunity to escape us for doing things at the proper time and in the proper way, many wastes might be avoided. It is a golden rule never to put off until to-morrow what we can do to-day.

Procrastination is one of the great obstacles to successful farming. Many farmers postpone until next week that which they have an opportunity for doing this week. This week the ground is in good condition and we can plow; next week the ground is too wet and we can not plow. This week we can cut our grain; next week the rain and wind have blown it down, and not more than half of it can be saved. This week if we plant our corn there is enough moisture in the ground to bring it up promptly; next week the ground is too dry to germinate the seed, and the seed will often lay in the ground for weeks before there is any rain to bring them up. The same is true in planting cottonseed and other crops. This week the ground is in order and can be plowed and pulverized nicely. Next week it has become too dry, and can only be broken by bursting up clods.

The farmer often consoles himself in planting late that he has killed a coat of grass, forgetting that he has also lost one good picking of cotton.

Neglecting to water the horse at the proper time causes the horse to drink too much water when he gets an opportunity to drink and drinking too much water at a time often produces colic, and the horse dies.

The hay can be cut and saved this week. Next week it is raining and it can not be cut and cured, and the week after that the hay is killed by the frost and lost.

Another great source of waste and loss to us farmers is want of proper knowledge and information. Without this knowledge and information we improperly prepare our land, do not give our cotton and corn proper space, and sow our oats and wheat too thick or too thin.

I once had a man to sow a field of oats for me. He sowed from three to four bushels per acre. The land was rich and well fertilized. The yield of oats from this field was only 5 bushels to the acre. Had the proper quantity of seed been sown on this land, no doubt the yield would have been at least thirty bushels to the acre.

Idleness is one of the great causes of waste and loss and failure on the farm. It is worse than droughts, excess of rain, storms or frosts. Idleness is the waste of time, and time once lost can never be regained. Idleness in all ages by civilized and enlightened people has been reckoned as one of its greatest sins. The Divine command is that we shall all earn our bread by the sweat of our brow. In vain are our days prolonged if we idle away our time. In many cases, in no other occupation is there so much idleness as on the farm.

For the purpose of showing the difference between waste and saving, I will divide the farmers into two classes; viz. the ignorant, the wasteful and idle class; and the intelligent, saving and industrious class. The first class do not work half of their time.

Frequently during the months of January, February and March, the land is too wet to plow. During these months the first class of farmers named, idle away the greater part of their time. They shuck no corn, generally have none to shuck; beat out no peas; haul no straw and litter into the stalls and lots to increase the manure pile, make no axe and hoe handles, turn up and mend breaks in no terraces, do not work on the upland ditches, or any other ditches, cut no briars and bushes which have grown up on the terraces and ditch banks, and clean off no fields to be ready for the plow. They have no pastures or gardens of any consequence, and make no efforts to have any. The horse troughs are on the ground with a rock in each end as a feeble attempt to prevent the corn from being wasted. Their stable doors are down, and they stop up their stables with poles or rails crossed in the stable doors. Their lot gates are off the hinges or without any fastenings. Their lot fences are often down. They make no effort to accumulate any manure, and if any accumulates in the stalls they occasionally throw it out in the lot where it is washed off down the gullies to the branches by the rains. They make no attempts to raise cattle, hogs or colts. They have no shelters for their cattle. If they sow any wheat, it is done in December when the ground is too wet and of course, make but little wheat. They sow no oats in the fall, but late in the spring they buy some Western oats on credit and sow them on thin land without any fertilizer and virtually make no oats. They sow no barely or rye in order to have green forage for their stock early in the spring. They half prepare their land and half plant their crops, plow and hoe but little, and always lay-by their crops early. They ride around over the neighborhood, tattle from one to the other, and often create strife among their neighbors. They visit the cross roads and village stores and frequently the city. They can seldom be found at home. They make no effort to improve the land or in any way take care of it.

Such farmers raise poor crops and generally come out in debt. They hunt a new merchant every year from whom to obtain credit, and then curse out the merchant who furnished them the year before. They take little or no interest in gathering their crops. If they are much in debt they leave the greater part of their cotton in the field for their creditors to pick. There is no computing the waste and loss they entail upon the country in which they live.

An intelligent and industrious class of farmers are great benefactors to the country in which they live. They are generally successful. They find work to do on the farm every day in the year and regret their inability to do more work.

Early in the fall they prepare well and fertilize heavily patches in which they sow barley or rye in order to have green food for their stock early in the spring. They know that green forage early in the spring is both food and medicine for their stock.

They prepare their land well and fertilize with both barnyard and commercial fertilizers and sow their wheat and oats early in the fall. They know by experience that small grain crops sown early in the fall yield much heavier crops than if sown late. They have learned from observation, from experience, and from the experience of others, the proper quantity of grain to be sown per acre. In the winter or spring months when the weather is more or less inclement and the land is too wet to plow, they repair the buildings on the farm, and build new ones when necessary. They cut, haul up and put under shelter their year's supply of stove and fire wood. They turn up their terraces and mend the breaks, and clean out and repair their ditches. They place corn and cotton stalks, leaves and other litter in the washes in the fields, and in plowing lift their plows over these washes and dump the dirt from their plows and thus level up the land. They work the plantation roads. They haul pine straw and litter of all kinds, sometimes rich dirt from places where it can be spared, and put such things into their horse and cow stalls. They haul in and scatter leaves and litter over their lots and make every effort to get up as much barnyard and stable manure as possible. They arrange for the drains from their lots to run into the adjoining fields. On rainy days they shuck and shell their corn and have it ready for use. They beat out their peas and have them ready for use or market. If they have no shop or shop tools, they build shops and buy some tools and repair their wagons and other vehicles. They feed their cattle, horses or mules, hogs and other stock with care and judgment. They feed them at a time only what they will eat up clean. They keep their stalls, doors, gates and fences in good repair. They keep their stock under shelter, and in cold weather make their stalls comfortable.

When the land becomes sufficiently dry, they prepare it well, plow it deeply, fertilize it heavily, and plant their spring crops as early as the seasons will permit. They cultivate their crops well, and gather them without waste or loss, or allowing them to damage in the fields. They raise their own meat, some cattle and colts, all the wheat, corn, oats and forage they need, and sometimes some for sale. They take care of their plantation tools, pursue the proper system of rotation of crops, keep vegetable matter in their land, which causes the land to produce better crops and saves it from washing. They stay at home on their farms every day in the year except when necessarily absent on business.

Such farmers are careful and painstaking in everything they do. Whatever they do, they do it well, and never put off until to-morrow what ought to be done to-day. They generally have a profit from their years operations. This they deposit in the banks and when a piece of property is to be sold at a bargain they are ready to buy and pay for it.

These two classes of farmers present the question of waste and saving on the farm. The first class named represents great waste, and the second class represents saving on the farm. The first class ignores the fundamental principles of all successful business, while the second class knows and practices these principles.

I may add, we have a salubrious and healthy climate, generous and fertile soil, adapted to the growth of a great variety of crops. Our transportation facilities are good, and our markets both for selling and buying are excellent. Under such circumstances, and surrounded by such conditions, farming ought to be a remunerative occupation—much more so than past experience has shown.

When we farmers learn more about our business, and concentrate our minds, energies and our ambitions more along the lines of agriculture, then we may expect much better results than we have heretofore obtained.

Stupidity, ignorance and idleness never yet made a success of any pursuit, avocation or calling, and never will. Eliminate as far as possible such mill stones around the business of farming, and we may hope to see a prosperous community of farmers wherever we may go.

Smithonia, Ga., January 4, 1910.

WHY A YOUNG MAN SHOULD CHOOSE FARMING FOR HIS OCCUPATION.

BY HON. JAMES M. SMITH.

There are many cogent reasons why a young man should engage in farming. It is better for him and better for the State, that he, in the morning of his life, should join that great army of our fellow citizens who in the past, have done so much, and are destined in the future, to do even more for the prosperity and happiness of all mankind. When he is young, strong and full of ambition, is the golden opportunity in his life to begin farming. Let him make up his mind to stick to farming, and hope and believe, through good as well as evil report, that in the end, his labors will be rewarded. Let him remember that there is no royal road to success in any calling. Success in all avocations comes from the constant exercise of good judgment, close application, hard study, fair dealing and an aptitude to learn, both through his own and the experience of others. Let him be economical and temperate in all things, and live inside of his income. Agriculture, as every one knows, is the pillar which holds up every other pursuit, avocation and profession. If every farmer should produce on his farm only enough to feed and clothe his family, with no surplus for sale, what would become of all those engaged in other pursuits?

While our commercial, industrial and manufacturing interests are important, yet they are small when compared to our vast agricultural interests. Young men of energy and brain are, everywhere, needed on the farm, and such men can safely count on success in farming. Farming is the most honorable occupation under the sun. The farmer feeds and clothes the world. Farming is more independent than any other occupation. The farmer comes and goes to his daily work at no man's bidding. His time is his own. He has refused to sell it for any consideration. He has every opportunity to exercise his brawn and brain. He is constantly confronted with problems, in connection with his business, on the correct solution of which depends his success or failure.

When the mechanic lays down his tools, or the merchant his yard stick, his income stops. When the farmer lays aside his implements of husbandry, his crop continues to grow, his slumber is undisturbed, because he feels, when his day's work is done, he has added to the comfort and wealth of the world. In the true sense, he is the most important citizen of his country.

If the farmer were estimated at his real and true value. he would take the first place. By his labor and the exercise of his brain, he gives additional value to every acre of land and to every tree that grows. He creates wealth. He not only causes two ears of corn to grow where only one grew before, but he causes two ears of corn to grow where none grew before. He does not prosper by reason of other people's misfortunes. He stands on his own merits. Another man's loss is never his gain. If the speculator gains a dollar, another man loses a dollar. The farmer adds to the comfort and happiness of all mankind. So great a man as Dean Swift, long ago, pronounced him a public benefactor, and worth more to his country than all the chronic office seekers and professional politicians who ever lived.

It is true the farmer often makes other people rich, while he, himself, remains poor. It is to be hoped that the future, unlike the past, will not witness so many instances of this kind. Unknown to fortune and to fame, the farmer lives and dies on his farm, yet the fruits of his labor build great cities, construct great railroads and whiten the ocean with ships. Although he may not always acquire riches, yet he often possesses the proud consolation of seeing his sons become the rulers of his country, and his daughters the first ladies of the land.

In times of war, he is the chief defender of his country's rights. He was first at Manassas and last at Appomattox. In times of peace he is the great conservative element which defeats at the polls the anarchists of the cities.

Heretofore the farmers have labored under many and great disadvantages.

When the true history is written, as will be done by some future McCauly or Gibbon, and the whole truth is recorded, as to the burdens which the farmers of the South, for the past forty years, have borne, and the fight they have made against such fearful odds, and the success which has crowned their efforts, it will excite the wonder and command the admiration of all future generations. During this period, in addition to all of their other losses and crosses, vexations and disappointments, the speculators by see-sawing prices have cheated the farmers out of the just rewards of their labors. By falsehoods, fraud and

Four Hundred Acre Field of James M. Smith.

deception as to the condition of the growing crop, they have depressed prices at a time when the farmers were obliged to sell in order to pay their honest debts.

While the farmer has been feeding and clothing the world, those whom he has been feeding and clothing, have often been his worst enemies. When cotton was selling below five cents, there was no reduction in the rate of interest which he had to pay, no scaling of the taxes, or lessening of the freight rates in his favor. In this critical period of history there is no record on it, if he received any help. If this condition of affairs had continued, there would have been no encouragement for our young men to engage in farming. But a change and a change for the better has come. The farmers everywhere have made up their minds to control their own business and to look after their own interests better than they have ever done before. They have united and decided to hold the surplus products of their farms until they can obtain remunerative prices. They are becoming more intelligent and are refusing to be "hewers of wood and drawers of water" for other people. They have learned that in farming there are two propositions to be considered; one is to produce the crop to the best advantage, and the other is to sell it at a profit, or hold it till the world is obliged to have it.

As time rolls on the farmers will become more and more intelligent and see more clearly the wisdom of uniting and pulling together.

Farming will become a more profitable occupation in the future than it has been in the past. Every year, as it comes and goes, will convince the farmers more and more of the necessity and wisdom of combining for their own self-protection. Often, heretofore, when they have attempted to unite for their mutual good and protection, and for the good of the country, pretended friends have come among them, and by one scheme, subterfuge and another, divided them into factions and put them to fighting one another, and as a natural result they fell back in the same old rut.

By all right-thinking people, labor on the farm or elsewhere is no longer considered degrading. The farmers are rapidly getting into a position financially, politically and socially, where they can not only demand, but force proper recognition of their rights. They have received so many kicks and cuffs, and have been the bottom dog in the fight so long, that some of them are yet believing that all the smart men live in the cities, or are engaged in pursuits other than farming. While they believe they are as good as anybody else, yet some of them hesitate to assert it, and to act it out. While farming, in many respects, possesses elements of uncertainty, yet, taken as a whole, it is a safe and reliable business.

The desire to get rich quick has ruined many a young man and made a wreck of his whole life. Let our young men remember that the future rulers of our country, especially when emergencies arise, are not being reared in our great cities and towns, but are to-day living on farms, on which they have been born and reared. In times of great trial and peril to his country, the farmer boy comes from his rural home, often awkward, but brawny and brainy. When the storm reaches its greatest fury, he becomes the chief captain of the day. All past history records this. The towns and cities are constantly enticing our country boys away from the farms. By this means much harm is done to the country; but they seem to be obliged to have them, because many of their own boys grow up to be no good. The country boys often make great mistakes in leaving the farm. Let our young men remember that the most of our great and distinguished men have been born and reared on the farm.

Every indication points to better times for the farmer. If our young men will engage in farming, and continue in that occupation, it will mean a great deal for their good, and for the good of the country. Georgia is one of the best farming States in the Union, if not the first. Remain in Georgia and remain on the farm, is wholesome advice.

The future of Georgia is brighter than the future of almost any other State. It is true, some who have left Georgia and gone to other States, have done well, but these same parties, if they had remained in Georgia, in all probability, would have done equally as well, if not better. There is always "more in the man than there is in the land."

The past is gone, the future is before us. The mistakes of the past if wisely considered, become lessons for the future. Labor and brain centered in the same person are the forces which will shape the destinies of our country. Skill with the hand and the educated brain to direct it will develop every resource, and add new value to every element of our country. All that is objectionable in our old methods is passing away. New methods, as fast as their utility and value can be demonstrated, are coming into use. Land is becoming too valuable to be cultivated

James M. Smith's Mules—He Knows Each One by Name.

in a slip-shod manner. Remember the old adage, "Make the land rich and the land will make you rich." The Creator has promised "Seed time and harvest."

The conclusion is: If a young man will engage in farming, and stick closely to his business through rain and sunshine, storm and drouth, use industry and economy, exercise good judgment, steer clear of bad habits, keep sober, act fairly and honestly with his fellow man, neither cheat or be cheated, control his passions and his prejudices, exercise patience and forbearance, dig deep for the truth, look and plan ahead, walk to-day in order that he may be able to ride to-morrow, always remember that "The diligent shall inherit the earth," do his duty in preparing, planting, gathering and marketing his crops, success will surely crown his efforts, and when he dies he can be buried under "his own vine and fig tree."

Smithonia, Ga., January 20, 1906.

SOME OF JAMES M. SMITH'S WISE SAYINGS.

1. The best way to manage labor is to fix the responsibility upon them. I tell every man, "Now I want you to go and do this thing in this way, and if it is successful you are entitled to the credit—and if you fail you are subject to censure." If this doesn't bring out the best that there is in a man—there is no *best* in him.

2. There is always a point where the roads to success and failure fork. The only wise way is when a young man comes to this fork in the road, if he is not certain which road leads to success, is not to go any farther until he has consulted some one who has traveled the road and knows which prong leads to success and which to failure.

3. It is one of the penalties God Almighty has put upon success—that you give personal attention to your business.

4. I have lost more from incompetent labor than from all fires, storms and droughts—which have caused me to lose many thousands.

5. If you can find a young man ambitious, sober, truthful and industrious, he will come out all right.

6. A man who increases his knowledge has done a great deal for himself and toward his future success.

7. My success has been largely due to my ability to control labor, my industry and to making wise investments.

8. Convict labor was in no wise essential to my success—they enabled me to rush on to my own injury.

9. I had another turn of mind: I always observed

closely and caught an idea here and there, made them my own. I learned to understand just what certain work would accomplish.

10. We need more intelligence upon the farm. I would not have succeeded so well had I not been pretty well educated to start with. I never had any more sense than I needed in my business.

11. A great mistake the average farmer makes is that he will not learn from the experience of others nor seek advice in time.

12. Land is becoming too valuable to be cultivated in a slip-shod manner.

13. No industrial, manufacturing or mercantile business can bear such waste as is usual on the farm without becoming speedily bankrupt.

14. When the true history is written as to the burdens which the farmers of the South, for the past forty years, have borne, and the fight they have made against such fearful odds, and the success which has crowned their efforts, it will excite the admiration of all future generations.

15. The farmer often consoles himself in planting late that he has killed a good coat of grass, forgetting that he has also lost one good picking of cotton.

16. Success in all avocations comes from the constant exercise of good judgment, close application, hard study, fair dealing and an aptitude to learn, both through his own and the experience of others.

17. The farmer comes and goes to his work at no man's bidding; his time is his own.

18. If a young farmer will stick closely to his business,

control his passions and his prejudices, dig deep for the truth, success will surely crown his efforts.

19. I have grown with my business and it is about the only way one can keep things well in hand.

20. I told my tenants, "If you wish to stay, you must be guided by my judgment; from now on things are going as I say on this place."

21. I always believed in doing things well.

22. Learn what is best to do at any given time; some things you can put off and some you can not.

SOME FACTS OF INTEREST ABOUT FERTILIZER MATERIAL.

1. How to Calculate the Per Cent. of Phosphoric Acid, Nitrogen and Potash in a Given Formula.

We will give you the average percentage of the different ingredients commonly used in making fertilizers.

Acid phosphate contains 14 to 16 per cent. of phosphoric acid.

Cottonseed-meal contains 7 to 8 per cent. of nitrogen and 2 per cent. of potash.

Muriate of potash contains 50 per cent. of potash.

German kainit contains 12 to 13 per cent. of potash.

Nitrate of soda contains 19 per cent. nitrogen.

Sulphate of ammonia contains 19 to 20 per cent. nitrogen.

Sulphate of potash contains 50 per cent. of potash.

Thomas phosphate or basic slag contains 19 per cent. phosphoric acid.

Tankage contains 7 per cent. nitrogen and 6.5 per cent. phosphoric acid.

Dried blood contains 13 per cent. nitrogen equal to 16 per cent. ammonia.

Blood and bone contains 10 to 12 per cent. nitrogen and 13 per cent. phosphoric acid.

Cottonseed contains ammonia 3.80 per cent., phosphoric acid 1.27 per cent., and potash 1.77 per cent.

Stable manure contains nitrogen in ton, 12 lbs., phosphoric acid 5 lbs., and potash 11 lbs.

Cow manure contains nitrogen in ton, 20 lbs., phosphoric acid 10 lbs., potash 25 lbs.

Ashes contain 1 per cent. phosphoric acid and 5 per cent. potash.

Land plaster contains 1.35 per cent. phosphoric acid, and potash 5.43 per cent.

Oak leaves put in stables are worth $3.00 per ton.

Straw as a fertilizer is worth $2.75 per ton.

Muck dry contains nitrogen 1.02 per cent. and phosphoric acid 23 per cent.

Now suppose we take the common formula:

1,000 lbs. 16 per cent. acid phosphate.
600 lbs. cottonseed-meal.
400 lbs. German kainit.
2,000 lbs.

Then we would have:

1000 × 16 = 1600 ÷ 2000 in a ton = 8% phosphoric acid.
600 × 7 = 4200 ÷ 2000 in a ton = 2.10% nitrogen.
400 × 12 = 4800 ÷ 2000 in a ton = .6% and
600 × 2 = 1200 ÷ 2000 in a ton = 2.4%
3. % of potash.

yielding an 8-2.10-3 goods.

2. Illustration of Method for Making Commercial Valuations of Mixed Fertilizing Materials.

Rule. Multiply the given per cent. of each constituent (nitrogen, phosphoric acid and potash) by its list price, add the products and multiply the sum by 20.

Example: What is the valuation of one ton of a commercial fertilizer having the following guarantee analysis?

Nitrogen	2 (to 3) per cent.
Available phosphoric acid	8 (to 10) per cent.
Potash	3 (to 5) per cent.

In each case where a guarantee analysis gives two figures, always use the lower, because the law takes only the lower guarantee into consideration.

1 (per cent. nitrogen) × 18.5 cents (price of 1 lb. of nitrogen) = 0.37 cents.
2. (per cent. av. phosphoric acid) × 4 cents (price of 1 lb. av. phosphoric acid) = 0.32 cents.
3 (per cent. potash) × 5 cents (price of 1 lb. potash) = 0.15 cents.
Total value of 100 pounds of fertilizer = 0.84 cents, or 0.84 cents × 20 = $16.80 a ton.

3. Trade Values of Fertilizing Ingredients in Raw Materials and Chemicals for 1905.

	Cents per lb.
Nitrogen in ammonia salts	17.5
Nitrogen in nitrates	17.0
Organic nitrogen in dry and fine ground fish, meat, blood, and in high-grade mixed fertilizers	18.5
Organic nitrogen in fine bone and tankage	18.0
Organic nitrogen in coarse bone and tankage	13.0
Phosphoric acid soluble in water	4.5
Phosphoric acid soluble in ammonium citrate	4.0
Phosphoric acid in fine ground fish, bone tankage and Peruvian guano	4.0
Phosphoric acid in cottonseed-meal, castor pumice and wood ashes	4.0
Phosphoric acid in coarse fish, bone and tankage	3.0
Phosphoric acid insoluble (in water and in neutral citrate of ammonia) in mixed fertilizers	2.0
Potash as sulphate, free from chlorides	5.0
Potash as muriate (chloride)	4.25
Potash as carbonate	8.0

Calculating the value of a ton of cottonseed-meal for fertilizer, we would have:

2000 × 7 = 140 lbs. nitrogen at 17 cents = $25.80
2000 × 2 = 40 lbs. potash at 4 cents = 1.60

4. AMOUNT OF FERTILIZER MATERIAL REMOVED BY CROPS FROM THE SOIL.

	crop	nitrogen	phos. acid	potash
(1) WHEAT: 30 bushels per acre.				
Grain	1840 lbs.	34 lbs.	15 lbs.	10 lbs.
Straw	4600 lbs.	14 lbs.	8 lbs.	39 lbs.
Total	6440 lbs.	48 lbs.	23 lbs.	49 lbs.
(2) OATS: 50 bushels per acre.				
Grain	1600 lbs.	34. lbs.	13.50 lbs.	10. lbs.
Straw	4400 lbs.	24.80 lbs.	7.30 lbs.	50.40 lbs.
Total	6000 lbs.	58.80 lbs.	20.80 lbs.	60.40 lbs.
(3) CORN: 50 bushels per acre.				
Grain	3000 lbs.	54.6 lbs.	21. lbs.	12. lbs.
Stover	4000 lbs.	41.6 lbs.	11.6 lbs.	56 lbs.
Total .	7000 lbs.	86.2 lbs.	32.6 lbs.	68 lbs.
(4) COTTON.:				
Lint	500 lbs.	1.22 lbs.	.30 lbs.	2.82 lbs.
Seed	1000 lbs.	27.12 lbs.	9. lbs.	10.25 lbs.
Total	1500 lbs.	28.34 lbs.	9.30 lbs.	13.07 lbs.

5. THE ANALYSES AND VALUE OF COTTONSEED AS MANURE OR FERTILIZER.

2,000 pounds cottonseed will yield:	Pounds.
Ammonia	76.
Phosphoric acid	24.40
Potash	22.40

This will be worth as commercial value:

76 × 17 = $13.92
24.40 × 4.5 = 1.09
22.40 × 4.25 = .95

Total $15.96

FERTILIZER FORMULAS AND COMPOST MIXTURES.

Christmas is over—1909 is gone and 1910 is here. It is time to begin planning and working for the coming crop. At this season the average Southern farmer begins to consider the fertilizer problems for the season, and to make his arrangements for his annual supply. Never did the farmers confront a year with just such conditions as now. Everything is on a tidal wave of high prices. High prices always stimulate production. We can not produce too much—if we will only practice the sound principles of diversified farming. But we can raise too much cotton—to secure a good price for it, if we plant an increased area over 1909. But we are to discuss fertilizers. The use of fertilizers has become one of the most important factors in Southern agriculture. It is a powerful agency in producing an increased yield—a thing we should all desire and work for. We certainly believe in the use of commercial fertilizers, but we also believe equally strong in the turning under of vegetable matter, the sowing of legumes, and the saving of all barn-yard manure. The up-to-date farmer will not consider one of these, but all four forms of increasing his crop yields. In considering commercial fertilizers, the farmer naturally wants the most for his money, or in other words, to get them as cheap as possible. To do this the farmers must get in position to pay cash for them. If you are able, pay the cash for your fertilizers. This is the only way they can be obtained at the lowest prices. Then the next step is to buy the ingredients and do your own mixing. However, by getting together and buying in large quantities the ready-mixed goods can be obtained at reasonable prices. The farmer who does his home mixing generally uses the splendid and simple formula of acid, cottonseed-meal and kainit, but this year he is confronted with $32.00 per ton for cottonseed-meal. When one ingredient gets too high, many will and should seek some substitute. For meal we can use "blood and bone," or tankage, and you will find some dealers advertising these in our columns. We can also supply the nitrogen needed by the use of nitrate of soda. Some provident farmers can use stable manure. We will give you quite a list of formulas, and endeavor to arrange them as best adapted to the various staple and truck crops:

FOR CORN AND COTTON.

1. FURMAN'S FORMULA:

Acid phosphate	350 lbs.
Cottonseed	750 lbs.
Kainit	150 lbs.
Barn-yard manure	750 lbs.
	2000 lbs.

2. STATE CHEMIST MCCANDLESS' FORMULA:

Quick lime	150 lbs.
Kainit	150 lbs.
Acid phosphate, 14 per cent.	250 lbs.
Cottonseed-meal	200 lbs.
Stable manure	1200 lbs.
	2000 lbs.

Or the following:

3. Quick lime	100 lbs.
Kainit	150 lbs.
Acid phosphate	250 lbs.
Cottonseed	400 lbs.
Stable manure	1000 lbs.
	2000 lbs.

4. LIPP'S FORMULA as Revised:

Acid phosphate	200 lbs.
Lime	200 lbs.
Muriate potash	100 lbs.
Nitrate soda	50 lbs.
Salt	50 lbs.
Sulphate ammonia	20 lbs.
Stable manure	1380 lbs.
	2000 lbs.

5. LIPP'S FORMULA—The Original:

Nitrate of soda	20 lbs.
Muriate potash	55 lbs.
Chloride of Sodium	20 lbs.
Sulphate of ammonia	10 lbs.
Lime	95 lbs.
Acid phosphate, 16 per cent.	105 lbs.
Stable manure or woods earth	1695 lbs.
	2000 lbs.

Many have used this in south Georgia and are pleased with results.

6. DAVID DICKSON'S FORMULA:

Peruvian guano	600 lbs.
Dissolved bone	600 lbs.
Common salt	600 lbs.
Land plaster	200 lbs.
	2000 lbs.

7. We would change this to the following:

Peruvian guano	600 lbs.
Dissolved bone (or blood and bone)	600 lbs.
German kainit	400 lbs.
Land plaster	400 lbs.
	2000 lbs.

Cottonseed-Meal Goods.

. High Grade:

Acid phosphate, 16 per cent.	1200 lbs.
Cottonseed-meal	600 lbs.
Muriate potash	200 lbs.
	2000 lbs.

This would give you a 9.60 phosphoric acid, 2.10 ammonia, 5.65 potash.

9. For a Low Grade:

Acid phosphate, 14 per cent.	1000 lbs.
Cottonseed-meal	600 lbs.
German kainit	400 lbs.
	2000 lbs.

This would yield: Phosphoric acid, 7 per cent.; ammonia, 2.10, potash, 3.10.

10. On Cotton Lands Subject to Rust would use

Acid phosphate	800 lbs.
Cottonseed-meal	600 lbs.
German kainit	600 lbs.
	2000 lbs.

This would yield: Phosphoric acid, 6.4 per cent., ammonia 2.10 per cent., and potash 4.2 per cent.

This would also be a good formula for

Corn and Wheat.

Formulas Using Basic Slag of Thomas Phosphate, and Blood and Bone.

11. Basic slag, 19 per cent. phorphoric acid	1000 lbs.
Cottonseed-meal	600 lbs.
German kainit	400 lbs.
	2000 lbs.

This would yield ammonia, 2.1 per cent.; phosphoric acid, 9.50 per cent.; potash, 3 per cent.

12. Blood and bone	1800 lbs.
Muriate potash	200 lbs.
	2000 lbs.

Or this:

Blood and bone	1600 lbs.
German kainit	400 lbs.
	2000 lbs.

For Truck Crops.

13. For Cabbage, Onions and Tomatoes would use:

Nitrate soda	200 lbs.
Cottonseed-meal	700 lbs.
Acid phosphate	700 lbs.
Muriate potash	300 lbs.
	2000 lbs.

This will yield you a 6-5-8.

14. For Sweet Potatoes would use:

Nitrate soda	100 lbs.
Cottonseed-meal	500 lbs.
Acid phosphate	1100 lbs.
Muriate of potash	300 lbs.
	2000 lbs.

This will give you a 3.5-8-8.3 goods.

15. Canteloupes and Melons would use:

Nitrate soda	300 lbs.
Cottonseed-meal	600 lbs.
Acil phosphate	800 lbs.
Muriate potash	300 lbs.
	2000 lbs.

This would yield 5.4 per cent. ammonia, 7.2 per cent. phosphoric acid, and 8.10 per cent. potash.

16. For Sugar Cane:

Cottonseed-meal	600 lbs.
Acid phosphate	200 lbs.
Muriate potash	100 lbs.
	900 lbs.

This is to be used on an acre. Cottonseed is good for cane, but stable manure is no good.

17. For RICE:

Nitrate soda	300 lbs.
Acid phosphate	900 lbs.
German kainit	800 lbs.
	2000 lbs.

Use from 400 to 600 pounds per acre on upland rice.

THE KIND OF COMMERCIAL FERTILIZERS TO USE AND SOME RULES TO GO BY:

1. Sandy soil needs potash in a higher degree.

2. Clay soil needs ammonia or nitrogen in a higher degree.

3. Ammonia or nitrogen makes the weed, so where you want vigorous growth use it liberally.

4. Acid phosphate and potash make the fruit, so where fruit is not in proportion to weed, use higher per cent. of these.

5. The greater amount of vegetable matter you have upon your land the less nitrogen you need, and here acid with potash is sufficient for good results.

6. As a rule the higher grades come cheapest in proportion to commercial value and it pays to buy them, specially if you plow deep and cultivate your crops well.

7. An 8-2-2 and 10-2-2 goods are considered standards; but you can buy goods to suit almost any crop or conditions. As a rule we would prefer more potash.

SOME INFORMATION IN REGARD TO COMPOSTING.

Our country being new, the land fresh and cheap and the domestic animals being few, have all tended to cause our farmers to neglect this fundamental method of obtaining fertilizers for their crops. But conditions are fast undergoing a change. Land is getting higher each year, and we farmers must learn to husband our every resource and to make the most of them. Every farmer should have a small fertilizer factory of his own, and this should be his compost heap. Here all the waste—weeds, leaves, trash, coarse manure and droppings from horses or cattle found outside the stables—should be gathered, put upon this pile, and then covered with a sprinkling of lime, acid and kainit, every time as much as six to eight inches of matter is put upon the heap. This pile at the approach of spring would be worth about as much ton for ton as the fertilizer we buy. This compost heap should be covered.

Many farmers are afraid of too much fermentation or "fire-fanging" as they term it. This can be managed with a little care; coarse material does not injure quickly—when packing so as to exclude too free a movement of the air lessens the danger, then keep the material as you put it in damp, not too wet but moist, which will prevent any damage by "fire-fanging."

In the old country muck is brought up from the bottom lands and used as a foundation for composting. Our labor conditions are not ripe for such a method here, but we can rake up all chip manure, leaves, straw, decaying weeds and grass; all rubbish upon the premises, and say you had 4 tons of this then, by mixing it with 600 pounds of lime, 800 pounds acid phosphate and 600 pounds kainit, you would have 5 tons of good fertilizer.

Two things we should stop—burning trash and allowing manure to leach by exposure to the rains. Here is some pertinent material gathered from a work on composting:

1. "The dung heap should be sheltered from sun or rain. The fermentation should be moderated by means of admixtures of loam or or some similar material. The heap should be kept moderately moist. Fresh dung should not be mixed with old. 100 pounds of dry matter eaten by an animal will produce 210 pounds of manure. A horse will produce 50 pounds of manure per day or 6½ tons per year. If well bedded with straw this will be worth $25.00 as fertilizer. It is a matter of long observation that if two or three loads of stable manure be mixed with a load of leaves or straw and allowed to ferment, the mixture will be as efficient load for load as the pure manure. Potash is a manure in itself and much better than soda for composting. Slacked lime mixed with weeds in proportion of 15 per cent. of lime to 85 per cent. of weeds will decompose the weeds in time for use in the spring."

2. Prof. Johnson, of New Haven, took some jars, and made the following experiments:

		Weight of crop of corn in grains.
1.	Peat alone	14.20
2.	Peat and ashes	32.44
3.	Peat, ashes and carbonate of lime	38.44
4.	Peat, ashes and slacked lime	43.22
5.	Peat, ashes, lime and salt	46.42
6.	Peat, ashes and guano	53.78

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